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ABSTRACT

The Subcommittee on Early Childhood, Youth and Families, Committee on Education and the Workforce, U.S. House of Representatives met, pursuant to call, on August 30, 1999 in the Petaluma Community Center, Petaluma, California, with Chairman of the Subcommittee Michael Castle presiding. This document represents the field hearing on how educational technology can be used to improve the academic education of the Nation's children. The hearing continues the examination of this issue, which the Chairman began in his home state of Delaware. Contents include opening statements of Chairman Michael Castle and of Representative Lynn Woolsey, Subcommittee on Early Childhood, Youth and Families, Education and the Workforce, and statements of: Representative Robert Scott, Subcommittee on Early Childhood, Youth and Families, Committee on Education and the Workforce; Ms. Alice Smiler Ostrovsky, Program Manager, Design Your Future, Autodesk Inc., San Rafael, California; Ms. Vanessa Caveney, Intern, Design Your Future; Dr. Greta Viguie, Assistant Superintendent, Cotati-Rohnert Park School District, Rohnert Park, California; Ms. Daisy Dampsky, Director, Safe Havens for Youth, United Way of Sonoma-Mendocino-Lake Counties, Santa Rosa, California; Dr. Janese Swanson, Founder, Girl Tech, San Rafael, California; and Ms. Cindana Cornwell, Vice President of Marketing, Spectraswitch Inc., Santa Rosa, California. Appendixes include the opening statement of Chairman Michael Castle; H.R. 2387, "Getting Our Girls Ready for the 21st Century," introduced by Representative Lynn Woolsey; and statements of: Ms. Alice Smiler Ostrovsky, Ms. Vanessa Caveney, Dr. Greta Viguie, Dr. Janese Swanson, and Ms. Cindana Cornwell. (Includes a table of indexes.) (AEF)

# FIELD HEARING ON TECHNOLOGY IN SCHOOLS: PREPARING FOR THE 21ST CENTURY



## HEARING

BEFORE THE

SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES

OF THE

COMMITTEE ON EDUCATION AND THE WORKFORCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

HEARING HELD IN PETALUMA, CA, AUGUST 30, 1999

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**MONDAY, AUGUST 30, 1999**
**HOUSE OF REPRESENTATIVES,**
**SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES,**
**COMMITTEE ON EDUCATION AND THE WORKFORCE,**
**WASHINGTON, D.C.**

The Subcommittee met, pursuant to call, at 1:00 p.m., in the Petaluma Community Center, 320 North McDowell Boulevard, Petaluma, California, Hon. Michael N. Castle [Chairman of the Subcommittee] presiding.

Present: Representatives Castle, Scott, and Woolsey.

## *OPENING STATEMENT OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC*

**Chairman Castle.** Good afternoon. My name is Mike Castle, and I am the Chairman of the Early Childhood, Youth and Families Subcommittee of the Education and Work Force Committee, one of the Congressional Committees in Washington, D.C.

This is what we call a field hearing. We are delighted to be here. I am sure that Congresswoman Woolsey is delighted to have Mr. Scott here, as well. It is an added treat, and I certainly welcome him also.

We are also delighted, by the way, to be in this beautiful part of America. For those of us who are from Delaware, you have to understand that it is different. I did point out to Lynn and it is interesting. There is something in Congress called the American Discovery Trail, and the theory is you begin with your rear wheel of your bike in Point Boreas Seashore Park and you go to Cape Henlopen, Delaware. So if you ever want to ride across the country on your bike, that is how you will do it; you will end up in my

fine State of Delaware.

The hearing we are going to have today is on education technology. That is sort of a wide subject and there are a variety of things discussed under that subject, but obviously how can it be used to improve the academic education of our children.

This hearing actually continues our examination of this important, and I might say ever increasingly important, issue which I began in my home State of Delaware last April, and I would like to thank Congresswoman Woolsey for inviting me here to learn more about it as we prepare to reauthorize the Elementary and Secondary Education Act.

Probably most of you here know this, but that is the largest federal commitment to K through 12 education. Virtually all of the programs, not all of them, but most of the programs that we deal with in our Committee on Education, K through 12, come under the Elementary and Secondary Education Act, and the three of us are working hard to try to put that into position to be reauthorized and modernized for another five-year cycle.

In recent years, funding for education technology has increased dramatically. In fact, in just the programs under ESEA, federal support has grown from -- listen to these numbers -- $52.6 million in Fiscal year 1995 to $698 million four years later, and this is at a time, by the way, when we have actually balanced the budget of the United States. So that is not a bad increase for one program.

Unfortunately, an unintended consequence of this growth is that our government programs are experiencing major growing pains. These federal programs, often at different federal agencies, are unprepared or unable to coordinate their activities with those that have similar purposes.

As a result, schools waste time and money filling duplicative, and often confusing, applications for federal assistance. Clearly, this is unacceptable.

Although the primary education technology programs served through our Subcommittee are those authorized under ESEA, we must find a way to consolidate or, at the very least, allow states and local school districts to integrate available technology funding streams in ways that allow for a truly coordinated and cohesive effort.

I also believe that support for education technology must translate into increased academic performance, not just the presence of new computers or access to the Internet.

According to recent studies, education technology can have a positive impact on student achievement, but only when it is used by well-trained teachers. Both those studies and my own personal experience underscore the need for improved teacher training and the integration of technology into classroom learning.

Although the Congress is still in the early stages of determining what we will do in the area of education technology, you can be assured it will be a major part of any education reform effort, and I will look forward to hearing our witnesses here today and their suggestions on how we can improve the current structure.

In closing, again, obviously I would like to thank Congresswoman Woolsey for her tremendous hospitality and, by the way, beautiful setting which she also helped build

as a member of the city council when she was there, and her staff. Obviously it takes a lot of staff work to put these together, and our staff, by the way, who have helped put this together from Washington.

I will now yield to her for any opening statement she may have, at which point Mr. Scott will make whatever opening statement he may wish to make, and I will talk about some small ground rules we have, and then Ms. Woolsey will introduce the various witnesses. Lynn.

[The statement of Mr. Castle follows:]

OPENING STATEMENT OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC – SEE APPENDIX A

***OPENING STATEMENT OF REPRESENTATIVE LYNN WOOLSEY, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC***

**Ms. Woolsey**. Thank you, Mr. Chairman, and good afternoon to all of you in the audience and at the witness table. I am so pleased that you are here, Mike.

I do not know if you know our Chairman, Representative Castle, was the Governor of Delaware, and it is particularly pleasing to bring you here to Petaluma.

**Chairman Castle**. Thank you.

**Ms. Woolsey**. I am really honored that you would come this far and have this interest in hearing some of the witnesses in my district about something that is very near and dear to our heart, and that is technology and education.

I also want to say hello again to Congressman Bobby Scott who is here for the second time as a witness on this Committee. It has been a few years. We are just a little bit farther north, but thank you for coming back, and thank you for your interest.

And the reason I am so pleased that we are all here is that, as most of you know, this is the Telecom Valley of California, if not the nation, and it started with one company, Digital Telephone Systems in Nevada, California, that Chet Stevens, who is up there, and myself were -- actually I was the sixth employee. Your number was much higher than that, Chet, and that company has spawned what is now Telecom Valley here in the North Bay.

And all along, as the human resources person for that company, and later my own business, finding employees and working with these high tech. companies, it became very clear to me that we have a shortage in technically, professional, prepared employees, and we also have a shortage in knowing how to train our existing employment work force

into the new technology.

So that is why as a Member of the Education Committee I have been absolutely committed to bringing technology to our classrooms. Clearly, a child without the knowledge and understanding of how to use technology in school and eventually in the workforce is going to be at a tremendous disadvantage; and as more of our economy, like this district, becomes interconnected with the rest of the world and becomes dependent on high tech. industries for the high cost, high wage jobs that these industries bring, these young people have to have the ability to enter and use technology.

And so I feel that too many of our youth, particularly young women, who are still out in the cold without the benefit of exposure to technology in the classroom. Also, as we put technology into our schools, I fear that we are not doing an adequate job in insuring that our teachers have the training they need to utilize technology as a part of their everyday instructional strategy.

And I know that Members of this Committee are equally as committed as I am to addressing these problems. As I said, I am particularly interested in what is happening to the girls in our schools because I find it very troubling that the lack of exposure for these young women to technology and careers in math, science, and technology related fields is going to, one, hamper our ability to have enough people in the work force because half of the population is female, and half of the geniuses and creative people in this world are women, and they have to be able to go into these fields.

Now, to that end, I have introduced legislation called Getting Our Girls Ready for the 21st Century, or "GoGirl." This legislation would provide schools with the means to expose young girls beginning in the fourth grade to careers in math and science and technology related fields. It would do this through mentoring, tutoring, and other proven methods, and that is because I feel two options.

Young girls are self-selecting themselves out of these classes. I do not put the onus on the schools. I do not put the onus on society, but there is a reason that young women are not interested in math, science, and technology. We have to address that reason, and we have to bring them beyond that so that they at least have the choice of whether they want to go into these courses when they go into college.

So, again, I want to thank you, Mr. Castle, for being here and Mr. Scott. This is going to be a great hearing. These are great witnesses ready to go.

H.R. 2387, GETTING OUR GIRLS READY FOR THE 21ST CENTURY, INTRODUCED BY REPRESENTATIVE LYNN WOOLSEY, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC – SEE APPENDIX B

***STATEMENT OF REPRESENTATIVE ROBERT SCOTT, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION***

***AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC***

**Mr. Scott**. Thank you. Thank you very much.

I am pleased to join Representative Castle and Representative Woolsey in the hearing today. We were all elected the same year, 1992, and so we have served together for several years.

As has been mentioned, Mike is the former Governor of Delaware, and from that perspective, he knows that very little would be accomplished without bipartisan cooperation. So he has been very adept at forging bipartisan cooperation on issues involving education and juvenile justice, and so it is a pleasure to work with him on this Committee.

Representative Woolsey has shown consistent dedication to improving education. She has also been a leader on work force issues on the Education and Workforce Committee, particularly addressing opportunities for welfare recipients, encouraging young women to study subjects which will prepare them for the well paying jobs which have been traditionally dominated by men, as well as she has also been a leader in focusing attention on the importance of technology.

We live in a world that is increasingly technologically oriented, and so she has reminded us that the businesses in her district in Northern California compete not just with those in Southern California or Seattle or even Virginia, compete with people around the globe. Companies wishing to expand need qualified workers, and communities with a shortage of qualified workers will have trouble keeping the businesses they have, much less attracting new businesses to the area.

And so the preparation of our future workers for jobs in technology will be crucial to our economic future. There are a lot of different ways where technology can be important as we consider our federal role in education. For example, how can technology be used to teach the basics, and how can students be specifically prepared for the technologically oriented jobs? How can teachers and administrators use technology to increase bureaucratic efficiencies? And how can we train teachers to use the most up to date methodologies in teaching their students?

There is a lot that we can do. Studies have already shown that the use of technology in education can increase student achievement. In fact, the greatest gains from using technology in education have been enjoyed by those students whose socioeconomic measures places them at greatest risk of failure.

And so I thank Governor Castle for convening the hearing today, and I thank Ms. Woolsey for her untiring efforts to improve the opportunities for students, and I look forward to the testimony by witnesses.

Thank you.

**Chairman Castle**. Thank you, Bobby, and thank you, Lynn.

And before I turn it back over to Lynn, let me just sort of explain what the ground rules are. We as Members of the Congress often have town meetings. This is not one of them. At town meetings, anybody can say anything they want, and they do, by the way, and we respond to it.

This is a Congressional hearing. So the only people who will speak will be the witnesses who will be called on. There is a variety of reasons for that, but essentially it is for control purposes so that we can get statements submitted for the record because what we do here goes well beyond Petaluma; it goes back to Washington. The statements of the witnesses, and the transcript in some cases, will go to all of the staff people there. If you submit any other documents or videos or anything you want to give us, that will also go back to Washington. You can do that without objection, by the way, unless somebody here protests it, which I doubt we will. We will be glad to take that information and send it back to Washington as well.

Each of you will have five minutes. Someone says, "Oh, gee, I do not know if I can fill five minutes." Everyone should be capable of filling up 50 minutes. I have been through this before. So understand that we want to hear the key words.

Now, literally there is an egg timer which has a horrible sound to it, and it will go off after give minutes. That does not mean you have to stop. It just means you should start thinking about bringing it to closure.

Some of you may have some videos, I believe, and various things that may take a little bit longer, and we will try to give you some latitude, but be understanding because we have, by the way, a great group of people who have gathered for this us today. We thank all of you for being here. This is sort of the last of the summer weekends, if you will. So the fact that you have taken time to be with us this afternoon we appreciate also, but we want to keep it moving in that direction.

When all of you have testified, then each of us will have an opportunity to ask questions, and we will do that relatively informally as well, but usually it is about five minutes per Member of Congress and an opportunity for a second round of questions if one wants.

So that is generally what we are doing. I just wanted to give you some rough idea so when you hear bells go off or gavels flying around, you will have some idea of exactly what has happened here.

And with that, let me turn it back over to Congresswoman Woolsey for introduction of our witnesses.

**Ms. Woolsey**. And you know when the gavel is thrown at you, you really have to stop.

[Laughter.]

You have to know that we in Congress spend most of our time speaking in one minute increments. So five minutes seems like a long time to us, but whatever you want to say beyond, we will have put into the record, and as the Chairman said, your video,

visuals will not cut into your speaking time.

I am going to introduce you all in the order that you are going to speak, and then you will speak in that order, and we will ask our questions afterwards. But I am going to just do all of the introductions.

Our first witness is Alice Smiler Ostrovsky.

**Ms. Ostrovsky**. Ostrovsky.

**Ms. Woolsey**. Ostrovsky. Thank you very much.

And where is Vanessa? Oh, come sit down, or are you doing that? Okay, and Vanessa Caveney.

**Ms. Caveney**. Caveney.

**Ms. Woolsey**. Caveney, and they are from Autodesk, Inc., Design Your Future Program, and Autodesk is the fourth largest PC software company in the world, and it is located in San Rafael, California, in my district.

[Laughter.]

**Chairman Castle**. It appears that you are testifying.

**Ms. Woolsey**. Right. Well, I am so proud of them.

**Chairman Castle**. And you do seem right proud of them, too.

[Laughter]

**Ms. Woolsey**. Oh, I am.

Ms. Ostrovsky for coordinating all aspects of the program, including managing student interns, producing the Web site, and marketing the program. For purposes of this hearing, I think it is important that we all know that she is a credentialed teacher.

Now, Vanessa is a student intern at Design Your Future. She recently graduated from Nevada High School, and she has chosen to defer her college for a year because she will be traveling in Europe. After that she is going to pursue a Bachelor of Fine Arts degree in digital art and design.

Our next witness is Greta Viguie, and she is the Assistant Superintendent for Curriculum and Instruction at the Cotati-Rohnert Park Unified School District, and she is responsible for the curriculum and instruction of 7,800 students, kindergarten through 12th grade.

Dr. Viguie works directly with the superintendent and develops the school district's strategic plan. One of her special interests is the integration of technology into the classroom. She was responsible for developing the school district's technology plan for the 21st Century, and to meet this end she obtained a Hewlett-Packard Access Internet

Grant so that they could purchase the equipment they needed for their program.

Most recently Dr. Viguie developed the Rancho Cotati Technology High School Program, and that is what she is going to describe to us today.

Daisy Dampsky, thank you for coming. She is our next witness. She is the Director of Safe Havens for Youth, and that's an after school program in Santa Rosa, and Safe Havens works with at risk youth in a variety of ways, including tutoring them in the use of education technology. Ms. Dampsky holds a bachelor of arts in child development. So she will be able to talk to you and she is very well aware of the impact of after school programs for all of our youth.

Now, the next witness; I heard her for the first time when I read about Dr. Janese Swanson and her daughter traveling to Florida to see the shuttle launch with our first woman commander, Erin Collins, and from then I was like why don't I know this woman and her wonderful company?

Dr. Swanson is founder of Girl Tech. It's a San Rafael company that designs and markets quality technology products for, and services for girls. She holds several education degrees and has won numerous awards and among them, the annual Leading Change Award from Women in Communications. We are very proud that you are in this district, and I am very interested to hear what you have to say, Janese.

Our last witness is Cindana.

**Ms. Cornwell.** Cindana.

**Ms. Woolsey**. Cindana Cornwell. Ms. Cornwell is the Vice President of Marketing and Business Development at SpectraSwitch. SpectraSwitch specializes in solid state, all optical photonic, fiber optic components used in the telecommunications industry, used in data networks and specialty test equipment.

Prior to joining SpectraSwitch, Ms. Cornwell was a Senior Marketing Manager for North Town Networks, Optical Electronics Division in England.

She has a Bachelor's degree in chemical engineering from Stanford University.

So thank you very, very much for coming, and we look forward to hearing from each of you.

## *STATEMENT OF MS. ALICE SMILER OSTROVSKY, PROGRAM MANAGER, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA*

**Ms. Ostrovsky**. Well, I will not tell you more about Autodesk because Ms. Woolsey has already introduced us.

We are here today, Vanessa and I, to represent Autodesk, Inc., as well as the Design Your Future initiative, and we wanted to give you just a little bit of background information. I think we are all here because we know that students need to be prepared to

participate in this technology savvy economy and work force.

Recent statistics -- these are very recent, hot off the press -- from May 1999 are showing a shortage of local employees that are costing Bay area high tech. companies as much as $4 billion a year. These statistics and others have been a wake-up call to companies like Autodesk not only for economic reasons, but also for community reasons. Today's students, as we all know, are tomorrow's innovators.

And the students that are our future innovators who we at Autodesk are particularly worried about in the case of our Design Your Future initiative are girls and young women. This is why the company has been so committed to this newest educational initiative.

Our mission is to provide practical, inspiring, hands-on opportunities for young women to become aware of, explore, and pursue math, science, and technology based careers.

Inspired by our CEO, Carol Bartz, a group of women managers throughout the company got together in 1996 to figure out what they could do to rectify this problem, to help girls stay interested in math and science and prepare for 21st Century careers.

If Carol could be here today, this is probably something like what she would say. She has been quoted often. We call this the appalling quote, but the number of women in technology today is appalling. As a corporation, we cannot allow young girls to be left out of the technology revolution because they lack fundamental skills or interest in math or science as Ms. Woolsey alluded to.

And we are lucky to have such a powerful role model in Carol Bartz. Some of the research that Carol and the other women at Autodesk looked to in designing Design Your Future have to do with girls and young women from the early grades, as early as fourth, fifth, and sixth grades, and why they are not taking the technology classes, as Ms. Woolsey said, why they are self-selecting out.

It is probably not a surprise to find out that girls make up a small percentage of the students in computer science classes, and when they do take computer classes, they tend to be in the sort of 1990s equivalent of typing class, word processing.

And something which I am sure Janese will speak to, and we have certainly seen, is that boys are exhibiting a much higher self-confidence around computers, a much more positive attitude. They have a can do attitude. They want to be constructive, while girls are turning away.

These gender gaps in technology are continuing on not only through middle and high school, but on into university, which is clearly affecting entrance into the work force. In computer and mathematical sciences, Bachelor's degrees, 40,000 degrees in 1992; only 16,000 of them were women, and in fact, particularly in computer science, according to a recent report from the National Science Foundation, the number of women earning computer science degrees is actually decreasing. It has decreased from 36 percent in 1983 to only 28 percent in 1993, and recent statistics are not changing in that regard.

Autodesk, Inc. and Autodesk Foundation have been very active in supporting the Federal School-to-Work Act and local partnerships which provide internships and other opportunities for students with local companies, and the American Association of University Women in their 1998 Gender Gaps Report found that although School-to-Work is offering students meaningful experiences in the work place, the young women are continuing to cluster in traditionally female occupations.

Boys are tending to dominate, even to the point of exclusion in engineering programs and industrial related programs, and as alluded to earlier, women are two out of three minimum wage earners. So we really need to turn around those trends.

Just real quickly, if you are at all familiar with the school-to-work transition -- is that five minutes?, oh, boy. Part of what we are doing -- I'll skip ahead to what we have decided works in terms of encouraging young women. We want to take them from the basic career awareness level through career decision making and finally career pathways.

We have a Web site which is designed and maintained by high school girls, and it provides resources and role models for the girls who use it, as well as teachers and parents.

We have a speakers bureau where we send professional women out into the schools and community events, and these professional women in technology act as role models not only for the young women in the classes, but also for the young men. As we are fond of telling young boys who have noticed that it is all boys in their computer classes, do not assume that your boss is going to be a man. In the case of Autodesk, in fact, the top boss is a woman.

We have a mentoring program called Passport Partners where we match up seventh grade girls from a local middle school with professional women from throughout the company. They go out into the community to educational events, tech museums, and the passport which is a journaling activity. We participate in take our daughters to work day, and in fact, the Autodesk model has encouraged other companies and offices around the country to develop really in depth career awareness models.

At the career aspiration level, we provide job-shadowing opportunities where groups of girls come to the company and are matched one on one with professional women so they can see behind the scenes what is it really like. They interview the women and ask lots of questions.

Our annual event is a hands-on technology day where women participate side by side with girls not only using technology, to design things and build things, but also team-work, public speaking. We have found for young women, public speaking is integral.

Telementoring is a new opportunity for matching women with young girls through E-mail through the Internet, and they work on designing a career and education plans for ten years, how to get from where they are now to where they want to be ten years from now all via E-mail.

The most in depth level, and at each one of these levels, at the career awareness level we reach a lot of girls a little bit, and as we move along the continuum we reach

fewer girls but more intensively.

At the career pathway level we support a team of interns. We had 12 high school girls up until this point in about a year and a half of operations who are paid interns at Autodesk, and they do real work at the company. They design and maintain the Web site, and they work very closely with women and men in the company.

We also have a scholarship. We have been lucky enough to have a scholarship endowed where we can support these young women when they go on to university and help them pay for their education.

I want to leave time for Vanessa to speak, but we do feel that these programs are not only good economically for the company and also good for the community, but they make a difference in the young women's lives. My favorite quote is this last one. This is from a seventh grader at our annual event.

"I learned that I'm much smarter than I thought. I may sound conceited, but I never realized that I could do what I did today." That is one of my favorites. I mean, it says it all.

We do believe that as we provide these interventions and these opportunities to girls at the appropriate stage where they are now and provide them some hands-on success with technology, it will make a difference. We are going to start seeing more Carol Bartzes, more Janese Swansons, more Carley Fiorenas, the new CEO of H-P. No longer will these women be anomalies.

And ultimately it really is a question of more legislation like the ``Go Girl'' Act. Autodesk has made a clear commitment to these programs, funding and through corporate funds, but we cannot be the only company doing this. We have to have more support for the schools who are interested in these programs.

So one of the young women who has in a very real way benefited from the program is with me today, Vanessa, do you just want to say a few words?

[The statement of Ms Ostrovsky follows:]

STATEMENT OF MS. ALICE SMILER OSTROVSKY, PROGRAM MANAGER, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA – SEE APPENDIX C

### *STATEMENT OF MS. VANESSA CAVENEY, INTERN, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA*

**Ms. Caveney**. Yes. About a year and two months ago, that's how long I've been with Design your Future, I've always been interested in art and, I wanted to make money off of it, and I did not really know how because I really did not know anything about technology. I was very scared of computers. I met Alice one day, at a conference that I went to with my mom, and she said, "Oh, you know, we need a design person at Design

Your Future. You can come be an intern." I said "No, no, no, no, I don't know anything about computers, and I don't want to touch them, and I do not know anything," and my mom, you know, kept pushing me, and I went and I applied. Well, I made it on hardly any skill, and in the first week they put us in an intensive 2 day HL training class, and now I have extensive draft coding abilities, I can use photoshop, I have extensive photoshop skills, and I am an illustrator, and I am earning cash,and job skills. It's like I am marketable right now at eighteen because of my design skills, designing web pages, that I am drafting everyday.

This internship is by far the most important thing I've ever done for myself. It's just been great. It's been so beneficial for me, and I think that some of the other interns that go in now they are better at public speaking, and they could interview it's really been great.

Thank you.

STATEMENT OF MS. VANESSA CAVENEY, INTERN, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA – SEE APPENDIX D

### *STATEMENT OF DR. GRETA VIGUIE, ASSISTANT SUPERINTENDENT, COTATI-ROHNERT PARK SCHOOL DISTRICT, ROHNERT PARK, CA*

**Dr. Viguie.** Good afternoon. Today I am here to talk to you about a technology high school program which opens its doors today Sonoma State University campus as a partnership program with the Cotati-Rohnert Park school district.

About two years ago, we started planning for this program with a group of parents, teachers, business-industry representatives, and people from higher education, and we did an extensive needs assessment of the local area and determined that a math, science, and technology high school program is what we needed in order to achieve the goals that people who were the partners in this project had established as a set of goals.

So, one of the first things we did is we took a trip back East to four schools that were math, science, and technology high schools that utilized project based learning which is a way of tying what students learned to real world activities and where students use technology as the tools to solve real world math and science technology programs.

So what I have for you today to begin my discussion with you is a ten minute video of the schools that we saw back East and some of the key things that we brought back with us to help us plan for our program. So if someone would push play.

[Whereupon, a video was shown.]

**Dr. Viguie.** Today the technology high school program opened its doors to its first 50 students. When we are done, this program will serve 400 students. The technology high school program will offer students enrolled at Rancho Cotati High School the opportunity to experience rigorous integrated math, science, and engineering curriculum using project

based learning and technology as key learning strategies and tools.

Students will enroll in the high school math, science, and engineering courses in the technology high school program located at Sonoma State University while taking English, social studies, physical education, and electives at Rancho Cotati High School.

The founding partners involved in the development of this program were the Cotati-Rohnert Park Unified School District, Sonoma State University, Hewlett-Packard, Autodesk Foundation, Santa Rosa Junior College. These founding partners identified the following shared goals for the technology high school program:

To increase the numbers of students who enter college and the work force with a commitment to study and seek a career in advanced science, math, and technology;

to maximize existing resources and partnerships;

to build the capacity of K-12 and university faculty to act as change agents in the reform of education in Sonoma County schools and universities statewide;

to create a high school program that is fully competitive with the best high school programs.

The focus of math, science and engineering were selected in response to the needs identified by the community, local business and industry, the Sonoma County Economic Vitality Report, the U.S. Department of Labor's Commission on Achieving Necessary Skills, the SCANS Report, the National Assessment of Educational Progress, international science tests, local standardizing testing data, and the California Science, Mathematics and Science Standards and Frameworks.

Considering all of the above information, the Technology High School Feasibility Committee determined that a logical theme for a partnership high school program would be math, science, and technology education, following the National Science Foundation's broad definition of technology as "a field of study that involves the application of knowledge, resources, materials, tools, and information in designing, producing and using products, structures (physical and social), and systems to extend human capability to control and modify natural and human-made environments."

Substantial research exists to support the assertion that all students learn more and retain it better if they are involved in active and applied learning as opposed to passive and theoretical learning. The best high school the committee could imagine, then, would be a curriculum that was activity or project-based.

The Technology High School Program's innovative integrated project-based curriculum was written collaboratively by mathematics and science teachers, university professors, and engineers from business and industry. The courses have been written so that the curriculum is integrated within and across the disciplines. Connections are made between the principles that the students study in math, science, and engineering which foster deeper, longer lasting understanding of the concepts being studied.

The partners in this program believe that with the implementation of this curriculum, along with project-based instruction and the use of high powered technology

tools, we will reach our mission of increasing the numbers of students who enter college or the workforce with a commitment to study advanced math, science, and technology. Simultaneously, we will create a national model for the reform of high school education.

The planning committee realized that this program would require a substantial initial investment in facilities and equipment. The committee believed that, with careful planning and assiduous searching, adequate funding from external sources, including foundations, the state, and business partners could be identified to make establishing and supporting a project-based math, science, and technology program feasible.

Since the design of the Technology High School Program, the coordinator of the program and myself have made many presentations to Sonoma County high tech businesses. The number of business partners continues to expand. Our partners are demonstrating their commitment to our students' education by providing resources and learning opportunities such as mentoring, job shadowing, internships, work experience, and monetary, equipment, and materials donations.

Through the planning of the Technology High School Program, a variety of resources have been and will continue to be developed. These resources include a $250,000 California State Specialized Secondary School Planning and Implementation Grant, 30 complete computer systems from Hewlett-Packard, monetary donations from local partners such as Rheodyne and CompuMotor, consultants for curriculum development from Sonoma State University and Hewlett-Packard, and the assistance in the design of the Technology High School Program Business Plan from Hewlett-Packard.

Every year for the next several years we will be adding another cohort of 60 students to the program. With the additional students comes the need for more materials and equipment. In order to maintain the growth of the program, alternative funding sources must continually be developed.

The Technology High School Program is an excellent example of the district core value -- we work as a team. We could not have designed and implemented this program without our partners. The partners in this project have learned that by sharing resources and power and working together as a team toward common goals, we can better educating our students.

[The information follows:]

THE TECHNOLOGY HIGH SCHOOL PROGRAM IS ON FILE WITH THE COMMITTEE ON EDUCATION AND THE WORKFORCE

[The statement of Dr. Viguie follows:]

STATEMENT OF DR. GRETA VIGUIE, ASSISTANT SUPERINTENDENT, COTATI-ROHNERT PARK SCHOOL DISTRICT, ROHNERT PARK, CA – SEE APPENDIX E

***STATEMENT OF MS. DAISY DAMPSKY, DIRECTOR, SAFE HAVENS FOR YOUTH, UNITED WAY OF SONOMA-MENDOCINO-LAKE COUNTIES, SANTA ROSA, CA***

**Ms. Dampsky**. Hello. My name is Daisy Dampsky, and I am the director of Safe Havens for Youth. This is a United Way initiative.

Safe Havens for Youth is a school-based initiative of United Way Sonoma-Mendocino-Lake Counties. Safe Havens builds capacity with local schools encouraging them to create their own individual programs. Safe Havens for Youth is not in competition with other programs and youth service providers but aims to coordinate and expand existing services. Safe Havens acknowledges and appreciates the good work already done and undertaken by other agencies within our community.

The initiative's approach is to connect children, youths, and their families to much needed services, supports, and opportunities at schools sites. A collaborative approach of the initiative brings together the participation of schools, business, government, community-based organizations, non-profit agencies, parents, and students.

Safe Havens creates effective (inaudible) to the needs of building assets and improving the learning environment of students to really achieve their maximum potential. The initiative pledges to support, train, provide technical assistance, support communication, outreach, and assessment with the schools that they serve.

Safe Havens long-range vision is to establish schools as life-long learning centers and focal points of our communities. To achieve our goal of being a focal point of the community, Safe Havens hopes to deliver the type of services as the program expands: parenting classes, adult ESL, GED, and continuing education classes as well as other types of community support.

Safe Havens' mission is to develop after-school classrooms into what we call multicultural learning centers. In the Safe Havens for Youths after-schools programs, computers and technology are being utilized to give students a rich and diverse learning environment in the after-school hours. This type of learning is designed to provide students with skills to prepare young people to enter into the global economy in which computers and technology will play a crucial role.

Students utilize technology in the Safe Havens for Youths after-school programs through the following mechanisms: Internet access and research, computer use and homework assistance in academic clubs, in math, in science, and language arts, including ESL. Technology is also used to explore career paths in the form of computer use as well as utilizing the skills of individuals working in the high tech industry.

The goal of the United Way in the Safe Havens for Youth Program is to actually provide after-school enrichment programs in all three counties that we serve_Sonoma County, Lake County and Mendocino County.

Save Havens for Youth has been benefited by receiving 21st century learning grant. We received a $1.8 million grant last December and have utilized that to develop

five what we call research and development programs for the expansion of Safe Havens for Youth.

Two of these programs are at elementary schools, Lincoln and Steel Elementary School; two are in middle schools, Santa Rosa Middle School and in Cook Middle School, and one is in Elsie Allen High School. Each of these schools has a 15-person advisory council that comes from the community, and in that advisory council, we are finding that a large interest has centered around preparing children for technology.

One of the statements that I have really thought about quite a lot is that many of the schools that we serve are schools that serve populations with free and reduced lunches. Two of our schools actually have 98 percent free and reduced lunches. These children don't have access to computers at home. Many of the parents are monolingual and have no understanding or education in computer technology.

Our hope is to provide access to computers for these children in the same way that we would always assume that a child would have a pencil when they started the day to learn. We feel that every child should have access to a computer. We have been able to, through leveraging of partnerships, one very important partner being Hewlett-Packard -- I want to mention that, because they have been very generous throughout our community -- we have been able to place 10 to 20 new computers in each of our school sites. This is allowing us to provide after-school programming.

One of the most engaging components of our program has been our web site development. We thought instead of having a newsletter, we would have a web site linking the five schools together. Many of the children that we work with are disengaged in school and don't see opportunities for future employment around technology.

We made it playful; we made if fun; we made it accessible, and our children end up making a comic book that allowed them to utilize their graphic skills, their literary skills, and their knowledge of superheroes to put together a beautiful piece of work that they are now using their entrepreneurial skills to sell. And all of it has been quite painless and children learning that they can use technology a new way that they never dreamt they could use it before. So, it is very exciting to us to be able to do this.

**Ms. Woolsey**. Dr. Swanson, before you get started, should we put your daughter in a chair? Do you want to pull a chair over there for her?

**Dr. Swanson**. Are you ready for us now?

**Ms. Woolsey**. Yes.

**Dr. Swanson**. Okay.

### *STATEMENT OF DR. JANESE SWANSON, FOUNDER, GIRL TECH, SAN RAFAEL, CA*

**Dr. Swanson**. This is Jackie Swanson, and she is 12 years old. And we have three tiny spots that we want to show -- they are probably about a minute and a half each -- to help us to talk about what we have done and why and how we have gotten here.

So, while she is unwinding that, I will walk up this direction.

Girl Tech, the whole idea behind our company is to encourage girls in technology use. I have several degrees in education. I started as a teacher.

**Ms. Woolsey**. I think that if you don't talk into the microphone, we are going to have a hard time hearing you, because all of this goes on record.

**Dr. Swanson**. Okay. Okay, Jackie, why don't you get ready to push play over there. Do you mind standing over there until your turn to talk?

You can do it? Okay, all right.

Okay, I think we are ready.

Okay, what we tried to do with Girl Tech is to encourage girls in tech use, so this first segment, which was a piece of documentary about how he got started, and it will give you a quick overview.

I have had a lot of struggles getting this company off the ground because of a subconscious bias that girls will not play with technology. If you build a product for a boy, the girls might buy it. If you build a product for girls, the boys will not buy it. So, therefore, do not build electronic- or technology-oriented products for girls; build them for boys, because we have a bigger market share.

[Video.]

I would like to submit this tape, because this was very significant. My daughter and I invented that product when she was eight years old, and we had come from software before that where we did Playroom and Treehouse and Carmen San Diego and also added the entertainment aspect to those products.

But when we did this, we had no idea that the commercial would feature a boy using the technology device and the girl begging to play, and even when she smiles and regroups and tried again to ask to play, she still gets the no, and there was no eye contact between the genders. The boy didn't even make eye contact.

Now, Jackie, what did you say when you saw that?

**Ms. Jackie Swanson**. I was about eight years old when I saw this commercial, and I asked my mom, "How come they made this product for boys?"

**Dr. Swanson**. And that was significant, because my doctoral research was all over the floor and I was just finished, and my research was on gender issues and play using technology as a medium. I was looking at boys; I was looking girls. I was looking at what are the differences and similarities between them and among them. And it just was staring right in my face that a brand needed to be developed around girls and technology,

and we had to overcome many, many obstacles. We finally have gotten our electronic gadgets to market, and our product is a number one selling gadget, and we have proven something against all odds.

And I would also like to submit our web site at girltech.com where I have a teacher area that I created that shows how you can get girls more involved with technology, and it is based on four years of research plus research from many, many other people. And all of that research is there for review, if you would like to see it, and also a parenting area and how to get your sons more involved with understanding the gender issue.

On the Girl Tech site, there is a boy area, as well, because boys have issues. They talk about one boy grew up with a girl, fourth-graders, playing on the playground, and he says the boys come by and call him sissy and call him names. And he says he didn't know how to react so he left his friend there, Laurie. After school, he wrote to us at girltech.com and said, "I really want to talk to her. I know I have hurt her feelings. I am not sure how to talk about this." And, so here was this site that we started the boy area at girltech.com with this issue, and other boys were coming to our site as well as girls, and we created this forum for the genders to come closer together.

And we have found that also in our electronic gadgets that the boys don't say, "Ooh, girlie," or call girls "tomboy." No names are called. It is girl; it is very valuable, and that is what our web site is about. It is to show the empowering issues for girls.

I would also like to submit "What's the Difference?," which is a compact view of the research which also involves education, as well.

And, quickly, I have a few overheads here I would like to share.

This is from "What's the Difference?" A significant point that was very painful for me was to see that both boys and girls were aware that boys are more highly valued in society. Messages were going out through the media as well as many other aspects that reinforce this, and my daughter saying to me, "Why did they make this for boys," when she helped to invent this product, was a moment that I will never forget, and that is why we started with Girl Tech.

We noticed that parents purchased technology twice as much for their sons than their daughters, and within the document "What's the Difference?," which is also on the web site in the teacher are and the parenting area, we talk more about the educational research and what we are doing there, as well, to encourage girls as well as to not necessarily encourage girls, as well.

So, go ahead and flip to the next page.

Two theories that I would like to share: cognitive theory states that if I am a boy, I will do boy things. If I am a girl, I will do girl things. And social learning states that we tend to imitate role models, and role models can be anything. It can be text; it can be a character in a video game; it can be an actor on television, and so messages must go out into all areas of our society, and school is very, very important.

Switch to the next one.

I will share with you a role model. Here is the magic bullet of my research. In order to have an effect on girls perceptions, we must have the same message going out into all of these areas of our society, and that is how we started Girl Tech. We had to get to the industry, convince them that girls will play with these types of gadgets and electronics, if we build it specifically for play patterns that are very positive and fit for girls and not necessarily stereotype them.

The media, as well, how they portray girls and also how they portray girls using technology, as you saw in this Yak Back commercial, which was not positive messaging for girls. Schools are important, as well, and, again, I submit our web site for review there. And the peer group as well as the family; you have to get the message out to all areas here.

Go ahead and switch.

Here is an example of, again, an advertisement that sends out the same message -- their grandfathers fought over toy trucks; their fathers fought over electric trains; they fight over the remote; what will their kids fight over? And notice the graphic does not include 52 percent of the population.

Okay, next one.

Here is a company that was real interested in having us talk about how to get girls involved with video games. Video games are usually the first introduction to technology at home and by the peer group. Girls were being left out. This is an advertisement targeted to kids between 8 and 12-years old, and you notice that there is a woman. She is not wearing anything except for a little (inaudible) of a very violent game. And at the bottom, the text was even more compelling. Anyway, so this is modeling, and this is a role model.

Okay, next one.

This came from the type of text that was used in the schools: Boys are doctors. Girls are nurses. Boys are football players. Girls are cheerleaders. Boys invent things. Girls do good things. And I can't go anymore from there. That text is a role model, as well.

Okay. And here are some characters. On the left you see a woman that gets paid a fortune for a job, and she looks very similar to another role model, which is a doll. And that body type is something that has been detrimental to girls, and because it is the only one that we are supporting, we must our differences and our similarities, and stereotyping is based on observations and their concepts. They try these on, and they try to see if it fits them.

A model can be anything that conveys information, including print, TV ads, or a person, and I would like educators to think about this when they are teaching critical thinking skills and looking at what is being presented to them so they ask the questions. They don't have to try it on and say, "Gosh, I am not fitting into this, and I want to try to

fit into it." Instead, they can find out who they are.

And, studies also show that both genders practice discriminatory treatment against females in the work and academic environment. There are some studies, and I have posted them on the web site, that talk about -- I mean, we are changing a lot, which is very good, but it talks a lot about women in the workplace. When a woman moves up the ladder, we are not always supportive, and so what we try to do in our work is to teach women to support other women and girls, early, to support other girls and validate each other.

Okay. And these are positive role model words, "Girls are intelligent, they are valuable, they are creative, they are powerful, and they are our future."

Jackie invented a product, because she has been so involved with technology. And, again, I had to go all the way around the block to get my career. In high school, I took a test and they said, Janese, here is your little affirmation card you can put in your wallet, in your purse, and it came out, and I was amazed because I wanted to be a doctor when I grew up.

And I was reading the research. It said 1 percent of the women make it, and, boy, no one graduated from high school from my family, so who am I to think this. And the test results said -- I market the F for female, and it came out, you can be a schoolteacher, a model, a sales clerk, and various other careers. I think there were five choices. I did them all, and I was still taking things apart trying to figure out how things worked, but no one said, "Hey, perhaps you should be an engineer. Oh, and you are so good at math." Even though I got A's and B's in math, I didn't think I was good at it, and that also showed up in the research.

I didn't want that to happen to Jackie. That is why we did this. So, Jackie, your turn now.

**Ms. Jackie Swanson.** Okay. Like you said, I got introduced to technology at a very early age, and I have been helping her since I was little and experimenting with things just as she did when she was young -- when she was little. And then that all led up to this.

This is Door Pass. It is a product which you stick under your door, and it has voice recognition technology and motion sensor. So, you record your password into it, so it recognizes your voice and the password. So, if someone tries to knock on your door or open it, it will ask for your password. And if they say it wrong or they don't say anything at all an alarm will sound off. And when you get home from school, it will tell you how many people tried to get into your room.

[Laughter.]

**Dr. Swanson.** This is based on a girl's play preferences, not about fashion or boys or jewelry and accessories. It is based on privacy issues, which is cross-generalized, across the population of girls. And, yes, boys, they want to play. And this is a wonderful environment for this to happen, because the genders do play with each other, and there isn't a discriminatory thing where, "Ooh, girlie, I am not touching it," and it really is nice to see that happen.

Do you want to show them one more product, and then we will be done? I think our five minutes are--

**Ms. Jackie Swanson**. Sure. This one is kind of similar to Door Pass, and it is called Password Journal. What it is, is it has, again, voice recognition technology, and so when you try to get in, it will let you in only if it is your voice and the password, and, otherwise, if you try to get in, it will lock, so you are not allowed to get in, if it is not the right password, and the alarm will sound off. So, you can't get in without it.

**Dr. Swanson**. And in our web site, we have these, and we open it up so the girls can see what the technology is, how it was invented. And, again, we are so proud that now we have girls from over 100 countries coming to our web site, and there is over 450 pages of award winning content there, and that whole teacher area is very important. And many teachers are helping to build that area by submitting lessons plans. They are not just my own lesson plans.

And I really encourage the group to take a look, and we will be giving these to you, as well.

[The statement of Dr. Swanson follows:]

STATEMENT OF DR. JANESE SWANSON, FOUNDER, GIRL TECH, SAN RAFAEL, CA – SEE APPENDIX F

GIRL TECH INFORMATION PACKET ON FILE WITH THE COMMITTEE ON EDUCATION AND THE WORKFORCE

**Chairman Castle**. Ms. Cornwell?

## *STATEMENT OF MS. CINDANA CORNWELL, VICE PRESIDENT OF MARKETING, SPECTRASWITCH INCORPORATED, SANTA ROSA, CA*

**Ms. Cornwell**. Hello. My name is Cindana Cornwell. I was born and raised in Stockton, California. I just recently moved back to this country less than two weeks ago, so it is a pleasure to be here. Thank you very much.

At a very young age I was a mathematician. My teachers in Valejo did me a disservice by having me teach class to an all-Black audience. I only stayed about three months at that school. But it taught me a lot that a woman could do anything she wanted.

I had excellent mentors, I have to admit. I had female mentors and male mentors ever since I was a little girl, and they were all in California.

I have traveled all over the world. I speak to the technology industry, and I am an expert in optical networking. I give talks to men and women all over the world on what is happening in the Internet and why the optical network drives the Internet of the future.

But it was the people in my life that have a lot of need to be successful, not just myself. So, mentoring is very important, and the exposure you get at a very young age are very important.

So, let me just give you my testimony, and then you can ask me any questions. I normally take about an hour to give a talk, but I won't do that.

It is my personal and professional belief that all young people in the world today should have equal access to the Internet and technology that will help save lives and build the economy of the future. The use and understanding of computers and the Internet is as important to young people today as the use of the car and the calculator were to young people of my generation -- I missed having to use the slide rule.

It is the responsibility of state and central government to make sure equal opportunity is available to all young people growing up today. The education systems need to have full access to the Internet via high-speed communications using the most up-to-date computers and digital televisions. The education will be richer and the learning experience more meaningful, if the technology is available from digital media and it is used effectively in the education system.

The best analogy in turning television to digital can best be compared to move from analog telephony to digital telephony, and several of you up there will remember when we used to stand in line at the bank to get our checking account balance. It is digital telephony that allows us to use the ATM machine to do that today.

We cannot, and I can't, anticipate -- and neither can Nicholas Megerponte who wrote "Being Digital" -- we can't anticipate which digital television or digital media will do to our education environment. But I can tell you right now that virtual reality gives you an example of that, not virtual reality gained but virtual reality used in an industrial environment. The ability to learn new information very quickly is just underestimated. And it also can be oriented to individuals. This can be brought through to the schools using high-speed communications and digital television. And that is what will change the education system.

The challenge is that it is not just the tools that we give people, whether or not it is the Internet access, the high-speed data link, the virtual reality, the computers, or the television, but the teachers need to be educated on how to use the Internet and the next generation digital video to increase the learning and knowledge development for the variety of students that they have to deal with.

Unfortunately, the education cannot stop in the schools. So, some responsibility exists to educate the parents on the benefits of these new tools and increase the awareness of good practices in the homes. As digital TV becomes more readily available, it will change our lives, and we don't understand how today.

[The statement of Ms. Cornwell follows:]

STATEMENT OF MS. CINDANA CORNWELL, VICE PRESIDENT OF MARKETING, SPECTRASWITCH INCORPORATED, SANTA ROSA, CA – SEE APPENDIX G

**Chairman Castle.** Well, thank you all very much. This has been a very impressive panel and I think enlightening to a lot of us in terms of what your different positions are in the aggregate and what you have done individually, too, I might add; and there are things that we need to address.

One of the things I would like to keep in mind as we go through our questions -- and I have got to stop talking, so I can ask some questions, because I don't have a lot of time either -- is those things that we can do in Washington that could help. If you have any direct suggestions on that regardless of what questions I ask - and maybe the others feel this way, as well - we are always interested in hearing that. That is very helpful to us, as we develop policy legislation or whatever, so don't ever be afraid to go off into that direction.

I am going to have five minutes now, and then we will go through a series of questions.

But let me start with you, Ms. Cornwell, because I see from my notes you just came back from England, you just came back to this country. Are they doing anything different in England with respect to, first of all, technology, math, science, education and then particularly with respect to women as opposed to men than we are doing here in the United States that you were able to observe?

**Ms. Cornwell.** I was in England for 13 years. My husband is one of the chief scientists in the United Kingdom. I was working for a large corporation, Nortel Networks, which is a company who specializes in telecommunications equipment around the world.

So, two different subjects. One is what Nortel did for the community, and that was predominantly in the United Kingdom. I did not see that in the other parts of Europe. But they are very formal programs in what is called in year in industry, industrial-sponsored students. We actually had a yes program, which was actually a government program called Young People in Engineering where we actually had days where students would come and we would set the computers up. We would allow them to go through the clean room where we actually made the lasers for fiber optic communications. So, Nortel was actively involved in the community.

I personally mentored many students in the United Kingdom, both male and female. I took it upon myself to educate employees, non-engineering employees within Nortel what their value was to the world. A lot of people made products, but they didn't understand what contributions they were making to the Internet and how significant it was to the world as a whole.

And the one thing I always told people, I said, "I know some of you cannot afford a computer at the home, but, please, do not deny your child the chance to have access to the Internet. It is so enriching, the amount of information that you can get and the knowledge they can gain so quickly. Do not deprive your children of that privilege even if you personally can't afford it."

On the community side, the British system has what are called public schools, and the public school is actually the private, or if you want to call it, the upper-class system.

So, if your child has aptitude or capabilities, they will have the privilege to go to a grammar school. There were two top grammar schools in the county that I lived in. One was the Girls Grammar School and one was the Boys Grammar School. I had a nephew at the Boys Grammar School. He is a computer expert; he is 11 years old.

I knew five young ladies going -- this is the top girls' grammar school in the United Kingdom, and the only time they had ever touched a computer was when they came to my office. There were no computers at the Girls Grammar School. It was unfortunate, and I left too soon to correct that.

**Chairman Castle**. Dr. Swanson, you and Jackie are two different generations, obviously. How are things different for her than they were for you, apart from your own involvement? I realize your own involvement has made her very technologically sound and knowledgeable, but in terms of what you see she is exposed to in school and the community, et cetera, have things changed?

And what suggestions would you have for us in terms of what we can do to make sure that things are changing for young people and for women in particular?

**Dr. Swanson**. Well, things have changed quite a bit since I was going to school -- high school and elementary school. And when I first touched a computer, they were data cards in a math class. We had a choice of playing with the computer system downstairs with the computer guys, which was all guys. And I was in an education course, and I was lucky enough to have a teacher that said, "You have a choice. You can go there or you can do another project," and I went for the technology, because I always loved it.

But, again, just the awareness of -- there are differences between girls as well as between boys and girls, and we should really look at those differences and accommodate to the individual learner, just as I always did when I was a teacher, to be aware that there are these differences and preferences and to provide an environment that celebrates that for learning.

I see at Jackie's school -- do you want me to share that -- I would love for her to share a story. Jackie, remember when you were in second grade and you had a new teacher? Go ahead. Will you share that story about raising your hand?

**Ms. Jackie Swanson**. Okay. When I was in the third grade, we were learning the tally system in math, and my teacher would always call on boys whenever they raised their hand. And, so I used that tally. I would tally how many times he would call on boys and how many times he would call on girls, and by the end of week I showed it to him, and then he started calling on girls a little more.

**Dr. Swanson**. And it is the awareness -- we talk at the dinner table. It is that modeling that I was talking about as so significant as a parent, both a father and a mother, to be aware. It would be really great if schools would have talks and seminars for the parents, parenting kind of classes, that revolve around the technology. They could have student mentors like this one going in and teaching them how to get on the Internet and learn more, as well, because I know that a lot of times moms are still afraid to go into that area.

We are seeing big changes. We were first on the Internet for girls, and I have seen so many wonderful sites coming, and that is really great.

But as far as gender spaces, I would like to make one comment and that is based on the research for many people -- Joe Saunders and many others talking to teachers across the country -- girls at this age, 8 to 12, 8 to 14, want to identify with their own gender, and it is really natural. And if boys need a place that is separated to explore using the technology, this is what I have found: Boys tend to -- I am going to generalize -- but boys tend to dominate the input device, a computer in the classroom, and what the girls tend to do is step back away from that. And I was seeing that trend happening quite a bit.

And, so girls when they are at a computer, it is not man against machine like it is for boys. It is a cooperative effort. They talk while they are playing, whether they are being the character that is on the screen, they are talking to their friends that are around and for interaction, and it is a language component. We develop the language centers of the brain earlier than boys do. There is differences in learning that take place.

And what I would suggest is capitalize on those differences and teach according to what those preferences are, to add that to the mix, because, maybe during school there is a special one day for girls and one day for boys to separate it, and then they get back together. But there are differences, and I think that that could provide an enriching environment for girls to feel more comfortable with the technology and to build curriculum around that. And I have suggestions on my web site.

**Chairman Castle**. Thank you, Dr. Swanson. My five minutes is over.

Congresswoman Woolsey.

**Ms. Woolsey**. Well, I can't help but share my story of my daughter who has three older brothers, and I tried to dress my daughter in pink. She wouldn't have it. Her counselor in school told her, "Don't worry about college; you are just going to get married." She is 32 now. She is the executive producer of Oxygen.com, and she has been talking about Girl Tech forever since you began. So, congratulations.

**Dr. Swanson**. Thank you.

**Ms. Woolsey**. Vanessa, for somebody as capable as yourself didn't know, what were we doing that got in the way of your knowing that you were this capable until Autodesk stepped in and gave you that opportunity?

**Ms. Caveney**. I really can't tell you. It never occurred to me. It was presented that, "Oh, you know, computers can be used with art." We didn't have very many computers in my school, and in high school there was a typing class and word processing or something like that, but there wasn't anything like Photoshop, and they never said anything to me like, "Oh, well, you know, you should get on the computer and try."

**Ms. Woolsey**. Had you played computer games?

**Ms. Caveney**. No.

**Ms. Woolsey**. Is there something about computer games being violent and bloody that turns girls off?

**Ms. Caveney**. Yes, I can't stand them. I can't stand violent games. I wouldn't touch them.

**Dr. Swanson**. Yes, there actually has been research done on why are girls less interested in most of the computer games that are out there? And oftentimes we think it is because they tend to be bloody, violent, rock 'em, sock 'em. In fact, there is research showing that girls actually just think they are stupid, they are pointless. They are not -- no offense, boys -- but they are not complex enough. There is the communication aspect.

I mean, if you could see my office back at Autodesk headquarters, it is a room with four computers in it, and it is loud. And it is incredibly productive. This team of high school interns took a web site from 10 pages to 150 pages in the course of several months. So, they are doing some hard technology, but they talk and they communicate, and it is teamwork and cooperative, and the girls don't realize that can be a part of the technology, as well.

**Ms. Woolsey**. Well, Greta, do parents have to be involved in order for our youth and our students to be interested in technology?

**Dr. Viguie**. I believe parents are a very important partner in our efforts to educate our students and are critical to supporting our success with out students.

One of the things that we are doing, is some of our parents went along with some engineers from Hewlett-Packard, and some lead science teachers from the elementary schools recently, to a training last spring where they learned how to educate parents as to how their children learn and how they can help them at home in the areas of science as well as in the other areas of reading and writing.

And we have a schedule of parent education nights that we are holding throughout this year that came from that, because we are committed to working with our parents as partners and believe it is very critical to our success.

**Ms. Woolsey**. Well, then let us talk about Safe Havens, Daisy.

Your after-school kids are youth at risk. Their parents aren't involved and their teachers. How are you getting that so the youth don't feel like they are in a void?

**Ms. Dampsky**. That is a challenge, because I think that there is a curiosity, a sort of intrinsic ability to break outside the box when you are young, that I think that in many cases the youth are guiding their parents. And I think that a couple of examples that were just given are wonderful ones, and I am thinking of these great partnerships I am going to develop after I leave this table.

But I think that it is really critical to have access. So much of it is around access. Many of the conversations we have had today are around access. And one of the main goals and objectives -- actually, the primary mission of Safe Havens is to turn schools into multicultural learning centers after the traditional school hours, and I think that a big piece of making it accessible is to make it welcoming, to look at things that seem very unimportant, such as lighting, so that it can be utilized after it gets dark, that we have

classes that are taught by -- in many cases, in Sonoma County, specifically in my schools right now, we have a lot of Spanish speaking families. And, so we are finding it is really important to have those classes taught by bilingual staff, bicultural is even preferable, so that there really is a sense of trust.

And it is couched in a whole number of services, and so it wouldn't be a stand-alone service. We would probably have a potluck, a meal -- a class on parenting and in addition to that, a class on using the network. And, so there is a sense of trust that has developed and so that it is not so unapproachable, and, as you were stating, you know, you have scored 97 percentile in aptitude, but nobody tells you you could be an engineer. In many cases, nobody tells families that they can even begin to utilize the computer, and it is really quite simple.

And I love to talk about it, because I am probably one of the most technologically challenged people at this table, and I had a real sense that it was something that was just used for processing and nothing else. And I have to say, being from that generation that is right above the (inaudible), that I have learned more from the kids than I could ever teach them about technology, because they really do see the possibilities, and I think just giving access is the important component of the adults.

**Chairman Castle**. Mr. Scott.

**Mr. Scott**. Thank you. Several of you have mentioned grants in these. Do you know whether or not any of these are Federal grants, and, if so, what did you get and what did you do with the money?

**Ms. Dampsky**. We are just beginning to study money very well. We received a 21st Century Learning Center grant from the Department of Education. That grant was disseminated through the research and development arm of the Department of Education, and it just gone under the umbrella of primary and secondary education, so we are still in that transitional phase.

We received the money, our notice of the funding, in December and put together our five initial school sites and were up and running by April. We are utilizing technology in a couple of ways. We are starting again this week, today, in all these schools, so it is a very important day. It is very appropriate that we are here today.

And what we are doing is we are using, for instance, the STAT-9. Stafford testing has become standardized in California, and we have found that there are some very solid computer programs that are based on teasing out where children have deficits in the academic subjects they are tested on, and then they actually do computer programming that allows them to self-tutor in the specific areas that they need support.

And it is, for many reasons, very successful. One, a lot of my kids -- they are my kids now -- a lot of my kids haven't had a lot of success in the classroom, and especially that would be with the high school population. They are not as comfortable going in and saying, "I am being tutored." I mean, there is a stigma attached to that. They are really comfortable going in and saying, "I am using technology" or "I am using the computer." And, so there is a self-tutorial that allows them to monitor their own achievements.

And I have a wonderful, just one success story of a child that I talked to last year who really wasn't reading or was reading about the fourth-grade level and started using this one program, and he actually passed the college competency last year. And he really pulled that off in about a year using this self-monitoring program. And he is so excited about that now he is, within the structure of this program, doing college work.

**Mr. Scott**. What we are trying to do as legislators, is we are trying to make these grants available; and I guess my question is a little more focused, as what should we be establishing grants for?

**Ms. Dampsky**. What should you be spending your money on?

**Mr. Scott**. Should we use the EREIN (ph), for example, and what other things should we be doing. For example, if a school district were to get a Go Girl grant, what should they do with the money?

**Dr. Viguie**. I can respond to that. One of the high priority goals in the Technology High School is to attract more girls to our program. We made an all out effort to attract girls to our program. Our goal was that we would have gender equity for our program. We had personal contact with girls' parents, counselors. We had engineering for all night that was held for the countywide where we have women engineers coming to talk to girls in the county about being interested in this program. We worked with Autodesk Foundation; we are working with Hewlett-Packard as this being a strategic goal for us. And we still have a long way to go. Less than a third of the students that have started this program are girls.

So, any support that we could get in that area -- and, you know, we are emphasizing--

**Mr. Scott**. You are talking about -- we have to kind of budget this -- you are talking about more staff for outreach is what you need?

**Dr. Viguie**. I believe what we need is more money to fund partnership efforts with business and industry to bring people into our schools and to bring role models into our schools, to provide opportunities for our girls to go out to businesses, to visit programs, and to work alongside women in industry and business.

In addition to that, I believe you had asked, how else can we help you? We have not received any Federal grants to support the development of the Technology High School Program.

**Mr. Scott**. Do you get EREIN (ph) money?

**Dr. Viguie**. We do. The district has applied for EREIN (ph) and has used that. Specifically, for the Technology High School Program, there is a great deal of equipment that is required -- machine shop tools, engineering equipment, tag-cam (ph) machines and fisher technic (ph) materials, computers. And the need far exceeds the amount of money that we receive in the district to provide these kinds of tools and opportunities for our students.

The money that we have generated has been from State specialized secondary school grants and from local partnerships with the university and with local businesses,

such as Hewlett-Packard and Autodesk and our local high tech industry. So, anything that could come our way from the Federal Government to assist us with either our efforts to attract and to programs that would interest girls and support girls in the area of math, science, and engineering and also to acquire the necessary equipment and materials, would be greatly appreciated.

**Ms. Ostrovsky**. Mr. Scott, I may be able to speak to your question.

I did read the Go Girl Act, and pretty much everything from grades 4 through 12, which is described in there, is something that we have implemented in our continuing activities. But those are funded from the corporate level. It is all free to schools.

And, so very specifically what I saw in there, which would be greatly benefited by direct funding, I think there is a subsidy for internships to pay up to half of a high school internship. Very critical, because we have more students who want internships at the high school level than the local businesses can supply. Not all the local businesses can budget a paid internship. We are very supportive of the schools. We have a local partnership in Marin County as well as in Sonoma County of schools who work to (inaudible) in the State.

So that kind of subsidy that will allow more high school students to come into after-school internships or summer internships that are paid real work experience is very critical.

**Mr. Scott**. When you say paid, how much are you talking about?

**Ms. Ostrovsky**. They start anywhere from minimum wage through_I don't know, Vanessa, can I say how much you make? Vanessa makes significantly more than minimum wage. We had a high school intern who made as much as $20 an hour, but that is pretty unusual. But at the very least minimum wage, and there are some -- I have interns who are paid for through Summaries Employment Training Partnership Act (ph), which is the old JTPA; very useful.

In terms of other costs to the schools, anything that supports school staff and teachers to be freed up to be able to partner with the businesses. The businesses are more and more, especially in this area, very eager and set up and providing staff time, paying for people like me to partner with the schools. You need that same kind of liaison on the school side or on the district side so that teachers can't teach seven periods a day and be making phone calls to industry or visiting with industry. So, we need to free up teachers, so that maybe they are only teaching four periods a day, one craft, plus they have got time to work as a liaison.

Those are two very specific ways that I can see the funding benefiting.

**Ms. Cornwell**. I support that,I totally support that.

**Chairman Castle**. All right. What we are going to do is have another quick round of questions. We are going to try to go questions, answers in five minutes, and I will start it, and, in my case, I may ask for a couple of group answers just because I am curious as to what you think. And I want to start with that.

I want to read you something which I think makes sense, but I want to make sure all of you agree or not agree, as you raise your hand.

Listen carefully. National studies on the use of education technology have found that Federal funding is often spent on the purchase of equipment and on connecting classrooms to the Internet with little attention to preparing teachers on how to utilize this technology.

These studies have also consistently found that three basic areas continue to need improvement: teacher training, access to technology, especially for low-income schools and students, and the integration of technology into teaching and curricula.

I realize you are not all experts on that, but does anybody here disagree with that? I mean, that is -- from what I have heard, it seemed to make sense to me, and I sense that you all agree with that, as well.

I just wanted to make sure that nobody was going to balk at that.

The next question I have is this -- and maybe we can get one or two of you to volunteer answers -- is the increasing use of technology getting parents more involved with education? It isn't a case of all youth probably, especially in your case, Dr. Swanson, or is it getting parents less involved, because it is beyond their ability to grasp it, and, therefore, they are not involved with it?

Does anybody have any opinions about that? Because I think that parental involvement is very important, as well, and I am worried that the parents are getting to the point of being a little frightened off of being involved.

**Dr. Swanson.** Right, and one of the things I found out from being a teacher is when -- and also being an organization, since my doctorate is in organization and leadership under the Department of Education, what I learned from that experience is that inclusion is key, and I showed you the five points of getting the message out to get parents involved with technology. If they affect the perception, you need that parental involvement, and I know parents are incredibly busy with work and home and everything else.

So, if there were a program at a school or multiple schools of, I don't know, building a web site that you could talk to each other and sharing that just by a seminar for parents, it gets them involved with the technology too. So, perhaps they will buy technology products for their daughters, which we have seen the research that they buy twice as much for their sons than their daughters.

And my technology things are like $9.95 to $22.95, and I came from the software world where I made Carmen and Playroom, and those were $40 products, and I saw that if I took technology and put it in at a lower price, I can get it out even more. So, I wanted to offer full range, and the Internet is free.

**Chairman Castle.** Let me ask you a quick follow-up then. I want to go on to something else, if I could.

What about in a lower-income situation or for technological ignoramuses, such as me? It is fine to say web sites and those kinds of things; I don't even know how to get to a web site. We have been credited with one of the 10 best congressional web sites in Congress; it could be helpful in my office. I don't have the faintest idea how to get to that web site. So, there are a lot of people like me, and there are a lot of people who can't afford to have a computer at home. I worry about these people.

So, is it possible to open school up for that kind of community? I mean, there is like the YWTA has a national tech girl where they bring the parents and the girls involved to NASA and they take them into that.

**Dr. Swanson** We need to do some kind of a community outreach kind of program to involve the parent and the school and market it in a way to the parents that, "Oh, this isn't a major commitment of your time, but let us get exposed and be a part of a community and teach." And these kids -- we have been teaching our kids in school issues that they can mentor the parents and the parents will get that sense of connection with the school and see what their kids have been learning.

**Chairman Castle**. Do you agree with that, Ms. Cornwell? Is it worth teaching or educating the parents in how to work better with our children?

**Ms. Cornwell**. I think what Ms. Dempsey has brought up is pretty much the way you have to do it. You have to give, if you want -- I know parents, like yourselves, who have been very successful but have never had to deal with technology in their business life or parents who haven't had the opportunity, either through economic reasons or education reasons, to be comfortable with computers.

They have to have a place to go. They literally just have to have a place to go and feel unthreatened, and that is either an after-school -- going into the school in the after-school hours or going to some other type of community center where it is a non-threatening experience, because if you have never touched a computer, it is a threatening experience.

Now digital television will change this. Digital television will bring it to the home quicker than this horrible, disgusting user interface that the computer gives to the world today.

**Chairman Castle**. Sometime I will get into that.

My final question is this, and I cannot imagine this stuff has made a difference, but a lot of you are successful, and you have made a difference in your community and even on a broader basis than that in terms of what you have done, and (inaudible) as Hewlett-Packard, I believe. And others are beginning to move up the ladder in various other companies. Did this make any difference in the way younger woman look at science, math, computer education, et cetera or has that not sunk in yet?

**Dr. Swanson**. I don't know if it has sunken in yet, because they don't have access to talk to them necessarily. They do at Autodesk. There is a handful of people there doing this, but women -- there are three of the Fortune 500 that are leading the companies, and they are very hard to talk to, hard to reach. And, so even for myself--

**Chairman Castle.** So, you taught her that. It could make a difference, but it hasn't.

**Dr. Swanson.** It really could, and the other thing I want to say is that when starting my company, I did it with five people in my living room for three years on credit cards and was determined to keep going no matter how many noes I got. And what saved us was putting it out on the Internet, out ideas and our thoughts. And that is what built -- it opened doors to get access to this business.

But if there was a grant program or something that helped fund that activity for other girls, maybe they would have some future discovery or idea, through education or some other vehicle. If that was allowed, that would be wonderful and significant to get them into participating and invention and technology. I think that that would be great.

**Dr. Viguie.** We also have some encouraging information when we looked at disaggregating our STAT-9 data, the performance of girls and boys was very similar in the area of mathematics, which was very encouraging. However, when we still have a situation where less than a third of the students who expressed interest in the Technology High School Program were girls.

So, we are making efforts, and I believe that there is change in the wind. However, we still have a long way to go.

**Chairman Castle.** Thank you. Ms. Woolsey?

**Ms. Woolsey.** I think our goal is that we don't celebrate three CEOs that are females; we just take it for granted. And when that happens, we will know that all of our young women have access. And that is why Go Girl reaches down to fourth grade.

My daughter e-mails me, and I pick up the telephone and call her back.

[Laughter.]

"Mamma, you are supposed to be learning how to use your e-mail." And I say, "Honey, if I know you are now there, I want to talk to your voice."

I mean, so we are problems, we parents, but at least I know it.

A problem I am experiencing, I am one of four Members of Congress on both the Science Committee and the Education Committee. And, so that puts a real onus on this whole issue. When I talk on the Science Committee about science, math, and technology, the heckles go up with the National Institute of Science witnesses. They so much don't want technology taking away from science, math stream of funding.

So, would any of you like to respond to that?

**Dr. Viguie.** Yes, I think the way to respond to that is with programs like the Technology High School Program, which have clear goals for increasing the math and science concepts and principles and understanding through the use of technology as a tool, so that when we speak to scientists, we maintain the rigor in the expectations for students, and that the use of technology does not in any way decrease the amount of rigor in our

curriculum or the expectations that we have for our students in math and science.

And that is why we took the time -- and copies of it are available to you -- when we developed the Technology High School curriculum, it was very important that we had high standards for math and science and that they were linked to the State standards and the national standards and that it was through project-based learning and the use of technology tools that enhances instruction.

So, I do believe it is very possible to marry the two and end up with a powerful program.

**Ms. Woolsey**. But can we do it without including technology in_we have talked math and science for a long time, and we know that girls still lag there. Can we do this without adding technology to the--

**Ms. Cornwell**. No, I think you need (inaudible).

**Ms. Woolsey**. --examples of industries that would not exist had it not been for the use of technology?

The biotech industry would not be what it is today -- we would never be able to decompose a DNA molecule without the use of technology. It is very simple where it has been used.

The fiber optics business is pure math. They are physicists. It has got nothing to do with using computers, but had they not been able to model physics and the parameters of how you grow the laser chips and how you measure the physical properties in a piece of fiber that is a 500 kilometers long, unless they had technology, they wouldn't have been able to apply the math.

So, there are raw sciences that would have never been able to evolve had it not been for technology, and Stanford University, MIT, and Harvard have proven that over and over again. And that kind of knowledge needs to come into your renovation, if it doesn't, because you can't separate them. They all need to work together. The evolution of math, the evolution of science are dependent upon technology.

Vanessa has done something quite significant. The humanities and the arts industry is very important to our future society. I am not a sociologist, but things that are visual are very important, and the real dangers of the Internet today and of digital television is that the quality of that information and the artistic awareness of how and who brings you that information today is actually very ignorant.

Just think of it like a newspaper. Newspapers have been in existence for hundreds of years, and all of a sudden we have the Wall Street Journal. I don't know if you know, it is the most popularly read journal on the Internet. However, we do not understand how the human interface is affected through this digital media.

Using people with good artistic skills, people who actually understand the image and the visual perception, even though we don't understand visual theory as a science today, people like Vanessa will give us better use of the technology.

**Dr. Swanson**. And to add to that would be arts music, as well. And, so if you have a technology initiative with math and science, I would hope that you would look at the well-rounded curriculum and say that technology is a component here, as well, because I wouldn't be here without having the technology to put the words out to bring the girls in. We wouldn't have this company, if we didn't have that expression.

**Ms. Woolsey**. I think I did us a disservice when I introduced Dr. Swanson by not telling you that she came up through Broderbund Software and had a lot to do with their successes. And thank you very much in the education area.

**Chairman Castle**. Mr. Scott?

**Mr. Scott**. Thank you. Lynn said she serves on the Science Committee as well as the Education and Workforce Committee, and therefore has a connection with some of the things said today.

I serve on the Judiciary Committee in addition to the Education and Workforce Committee, so I am interested in the parental education. Parental training and education has been studied, and most of the studies have shown that it is the most cost-effective way of reducing crime. One, it actually reduces crime, and, two, it is so cheap.

So, as opposed to mandatory minimums, the death penalty, and everything else you can do, parental training is one of the best -- you get the best return on the dollar in reducing crime. And, so our sense is here that it could have an impact on gender equity.

I would assume it would have a positive effect on everybody getting into science, not just girls, also boys. And I guess a general generic question: Is parental education a very worthwhile initiative for us to get into?

And if I could reflect that everybody is in agreement.

Just quickly, Mike mentioned the studies on at-risk students where the studies have shown that at-risk students get a much better benefit. Everybody gets a good benefit, but at-risk students even better, because they don't have computers at home. And from a legislative point of view, my question would be whether or not funds ought to be focused on adverse students?

**Ms. Ostrovsky**. I think that we have found, and we are in Morin, so we kind of escaped this somewhat, but Silicon Valley has taken a pretty big hit lately -- I don't know if there was a Mercury news reporter here. But in terms of ethnic representation in the high-tech industry -- and we are very interested in under-representation across the board in terms of access to high tech. It is a very important issue, and one of the things that we have been pleased to see with Design Your Future, which has pretty focused, at least externally, on girls and gender equity, because it is really had a positive benefit across the board on underrepresented minorities, period.

The schools that we work with, we are able to provide mentoring, not only to girls but to girls who are from immigrant families, who don't have computers at home, who wouldn't otherwise be getting the exposure. On the parental side, we actually often have a hard time separating the mothers from their daughters for activities, and they time and time again say, "If there had only been this type of opportunity for me. Can't I stay and

play with the Legos too?" So, it absolutely necessary.

So, I would encourage you to support -- one of the things that I worried about when I read the Go Girl Act was the "Why only girls, what about boys," question. And these kinds of programs benefit everybody who is in the classroom. It isn't only benefiting the girls who are directly affected by the particular grant.

**Ms. Dampsky**. Well, I also think that it is important just as a practical application is access to computers, and one way that we are doing it locally, but it is easy model that anyone could emulate, is that in one of our projects we were working at teaching rebuilding of computers. And so the students are actually learning how to -- it is great for school as a career, and it really -- it aids in the sense of employability and esteem and allows the students to have, then, a computer that they can bring home, and so they have a computer, then, for their family.

And, so we couldn't possibly do a program like this, although it is not as expensive as a new computer, but we are developing this program without support from the Federal Government that allows to bring in the partners that we need for this and also the distribution awareness and the partnership has some cost. And, so it is very exciting to be able to have that kind of partnership with the Federal Government to actually get computers into the homes.

**Dr. Viguie**. I think another program that would be helpful in getting parents involved to use computers would be a loaner program where schools could loan computers to families that didn't have access to them.

In addition to that, I think funding to support more adult education programs would be very helpful. What we hope to do with the Technology High School Program is to have an adult education component in the evening and invite adults to come use all this wonderful technology that their students are learning or that any adult in Sonoma County may want to access.

And, so funding to support the instructors that would teach the parents and bring them into our schools -- we have expanded the library hours in our schools, but we need support funding.

**Mr. Scott**. If you have the computers in the libraries, do those without computers at home access those computers?

**Dr. Viguie**. Mostly students. Our high school library is open until 7 p.m., and we have, through a partnership program with Sonoma State, a tutorial program after school where tutors work with high school age students after school. And mostly it is students and their tutors in the library.

We haven't promoted the idea of bringing parents in, because there is not a lot of space or access. However, we do plan to use the Technology High School Program site to bring adults in and make the commitment to make that available.

**Ms. Woolsey**. If the gentleman will yield just a minute?

**Mr. Scott**. I will, but I have two more questions.

**Ms. Woolsey**. Yes. Can (inaudible). When we saw that video, it was very clear to me, it is not boys against girls, or minorities against females. There were a good group of minority young men in that video, and there were very few girls. It isn't either or, but--

**Dr. Viguie**. And those programs that we talked to tell us that they have active programs to seek out more girls. I had an opportunity to sit down and talk with one of the girls who had chosen to go to a high-tech program in New Jersey, and I asked her, "What made you" -- because this was a regional program, and in order to go to this program they had to leave their neighborhood community and travel a distance, leave their friends behind.

I said, "How did you make the decision to come to this school, to be a part of it?" And she said, "Well, for me, I want to go into business, and science is about how the world works, and we all need to know that. And mathematics, well, of course, you can't go into business without knowing mathematics, and, technology, everyone who leaves school is going to need to use technology as a tool in some way. So, for me, although I don't plan to be an engineer, this program makes great sense."

So, somehow we have to help girls come to those connections, and that is what we are seeking to do.

**Mr. Scott**. Last question. We have talked about the importance of teacher training. Do teacher training protocols exist?

**Dr. Viguie**. We were very fortunate to provide, with our partners, some teacher training in the area of technology this past summer. Hewlett-Packer, Intel, Microsoft, through a partnership program provided trainers model, which then the trainers came back and trained teachers in our school district. We need--

**Mr. Scott**. But does that prepare you to teach people -- to teach us how to use the computer?

**Dr. Viguie**. In the classroom.

**Mr. Scott**. What about the best teaching methodologies? Does that exist?

**Dr. Viguie**. The best teaching methodologies aside from--

**Mr. Scott**. How to use the computer and incorporate the computer--

**Dr. Viguie**. That is what the training focused on, how to use the technology in the curriculum and how to incorporate the use of technology in the curriculum. This training was very well received in terms of its usefulness to the classroom, and I think it is a model that could be built on.

**Ms. Ostrovsky**. It doesn't currently exist in the State credentialing program, as I know it. There is a technology mandate, but it is more geared to how to use computers in the classroom, not how to integrate it and use best practices.

**Mr. Scott**. So, formal education doesn't have any technical assistance to tell me how to teach?

**Dr. Viguie**. We do have excellent support from the Sonoma County Office of Education. They have a strong component where they provide staff development and teacher training in the use of technology and how to integrate it into the curriculum, and all schools in Sonoma County can access that training through -- and some of the people are here in the audience from that training.

**Mr. Scott**. Is that something unique to Sonoma County?

**Ms. Woolsey**. Well, could I respond to that? Our Higher Education Act includes legislation that is modeled after Sonoma State University that brings schools and higher education into the schools, and they bring that technology with them while they are learning to be instructors. But they, college students that have great technology skills come to the classroom, learn how to be educators, while they are educating their teachers in the classroom how to be high-tech or technical. But it is very limited. We have to do way more than that.

**Dr. Swanson**. When I got my credentials, I took technology coursework at Berkeley and have a degree in the technology component, and there were lots of teachers that were going in that direction, not only -- they are were already credentialed teachers teaching but wanted more skills. And I know in California, you have to take coursework to keep up your credentials, and, as part of that, many teachers have gone into the technology realm at schools like Sonoma State and Berkeley and USF to learn more about the technology and using it in the classroom.

The best use -- and if you ever have a chance to go to girltech.com, go to the teacher area, because they talk and the put the lessons plans up in different curriculum. These are already tested lesson plans, and they talk to each other about how they use technology in all areas of the curriculum, art, music, and all the way through science and math.

So, if somehow there was a State web site, which would be really great to have teachers input in putting that up, it is a wonderful resource.

**Chairman Castle**. Well, let me thank you, Bobby. Let me thank all of you very, very much. You have been here for a length of time. You all stayed the entire time. Usually, in Washington, people are running off to get airplanes and everything else. We lose everybody. We are the ones who usually go wandering around. You can't find us.

But I think what you have shared with us today has been extremely helpful in aiding us and looking at what we have to do in Washington to hopefully help with some of these programs. And we will get all this information, by the way, back to the people there and to the committee people.

So, I personally wish to thank you and on behalf of the committee I wish to thank you, as well, and I will call on your distinguished local congresswoman for any closing she wishes to make, Ms. Woolsey.

**Ms. Woolsey**. As usual, you make me proud. Thank you very much. We have all learned something. And I always say if it doesn't happen here in the sixth congressional district, it probably won't happen anyplace. So, thank you for being the leaders you are.

**Chairman Castle**. We all say that in all of our congressional districts.

**Ms. Woolsey**. Yes, but I really mean it.

**Chairman Castle**. Thank you very much.

[Whereupon, at 3:10 p.m., the Subcommittee was adjourned.]

***APPENDIX A - OPENING STATEMENT OF CHAIRMAN MICHAEL CASTLE, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC***

**OPENING STATEMENT**
**THE HONORABLE MICHAEL N. CASTLE, CHAIRMAN**
**EARLY, CHILDHOOD, YOUTH & FAMILIES SUBCOMMITTEE**
**AUGUST 30, 1999**
**"TECHNOLOGY IN SCHOOLS: PREPARING FOR THE 21ST CENTURY"**

GOOD AFTERNOON. MY NAME IS MIKE CASTLE, AND I AM THE CHAIRMAN OF THE EARLY CHILDHOOD, YOUTH AND FAMILIES SUBCOMMITTEE IN WASHINGTON, D.C. I WOULD LIKE TO WELCOME YOU TO THIS AFTERNOON'S HEARING ON EDUCATION TECHNOLOGY AND HOW IT CAN BE USED TO IMPROVE THE ACADEMIC ACHIEVEMENT OF OUR CHILDREN.

THIS HEARING CONTINUES OUR EXAMINATION OF THIS IMPORTANT ISSUE WHICH I BEGAN IN MY HOME STATE OF DELAWARE LAST APRIL AND I WOULD LIKE TO THANK CONGRESSWOMAN WOOLSEY FOR INVITING ME HERE TODAY TO LEARN MORE ABOUT IT AS WE PREPARE TO REAUTHORIZE THE ELEMENTARY AND SECONDARY EDUCATION ACT (ESEA) - THE LARGEST FEDERAL COMMITMENT TO K-12 EDUCATION.

IN RECENT YEARS, FUNDING FOR EDUCATION TECHNOLOGY HAS INCREASED DRAMATICALLY. IN FACT, IN JUST THE PROGRAMS UNDER ESEA, FEDERAL SUPPORT HAS GROWN FROM $52.6 MILLION IN FISCAL 1995 TO $698 MILLION JUST FOUR YEARS LATER.

UNFORTUNATELY, AN UNINTENDED CONSEQUENCE OF THIS GROWTH IS THAT OUR GOVERNMENT PROGRAMS ARE EXPERIENCING MAJOR GROWING PAINS. THESE FEDERAL PROGRAMS - OFTEN AT DIFFERENT FEDERAL AGENCIES - ARE UNPREPARED OR UNABLE TO COORDINATE THEIR ACTIVITIES WITH THOSE THAT HAVE SIMILAR PURPOSES. AS A RESULT, SCHOOLS WASTE TIME AND MONEY FILING DUPLICATIVE, AND OFTEN CONFUSING, APPLICATIONS FOR FEDERAL ASSISTANCE. CLEARLY, THIS IS UNACCEPTABLE.

ALTHOUGH THE PRIMARY EDUCATION TECHNOLOGY PROGRAMS SERVED THROUGH OUR SUBCOMMITTEE ARE THOSE AUTHORIZED UNDER ESEA, WE MUST FIND A WAY TO CONSOLIDATE OR, AT THE

VERY LEAST, ALLOW STATES AND LOCAL SCHOOL DISTRICTS TO INTEGRATE AVAILABLE TECHNOLOGY FUNDING STREAMS IN WAYS THAT ALLOW FOR A TRULY COORDINATED AND COHESIVE EFFORT.

I ALSO BELIEVE THAT SUPPORT FOR EDUCATION TECHNOLOGY MUST TRANSLATE INTO INCREASED ACADEMIC PERFORMANCE, NOT JUST THE PRESENCE OF NEW COMPUTERS OR ACCESS TO THE INTERNET.

ACCORDING TO RECENT STUDIES, EDUCATION TECHNOLOGY CAN HAVE A POSITIVE IMPACT ON STUDENT ACHIEVEMENT, BUT ONLY WHEN IT IS USED BY WELL-TRAINED TEACHERS. BOTH THESE STUDIES AND MY OWN PERSONAL EXPERIENCE UNDERSCORE THE NEED FOR IMPROVED TEACHER TRAINING AND THE INTEGRATION OF TECHNOLOGY INTO CLASSROOM LEARNING.

ALTHOUGH THE CONGRESS IS STILL IN THE EARLY STAGES OF DETERMINING WHAT WE WILL DO IN THE AREA OF EDUCATION TECHNOLOGY, YOU CAN BE ASSURED THAT IT WILL BE A MAJOR PART OF ANY EDUCATION REFORM EFFORT. AND I WILL LOOK FORWARD TO HEARING OUR WITNESSES SUGGESTIONS ON HOW WE CAN IMPROVE UPON THE CURRENT STRUCTURE.

IN CLOSING, I WOULD LIKE TO THANK CONGRESSWOMAN WOOLSEY AND HER STAFF FOR ARRANGING THIS IMPORTANT HEARING, AND I WILL NOW YIELD TO HER FOR ANY OPENING STATEMENT SHE MAY HAVE AND THE INTRODUCTION OF OUR DISTINGUISHED PANELS OF WITNESSES.

***APPENDIX B - H.R. 2387, GETTING OUR GIRLS READY FOR THE 21ST CENTURY, INTRODUCED BY REPRESENTATIVE LYNN WOOLSEY, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH AND FAMILIES, COMMITTEE ON EDUCATION AND THE WORKFORCE, U.S. HOUSE OF REPRESENTATIVES, WASHINGTON, DC***

I

106TH CONGRESS
1ST SESSION

# H. R. 2387

To amend the Elementary and Secondary Education Act of 1965 to provide grants to local educational agencies to encourage girls to pursue studies and careers in science, mathematics, and technology.

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IN THE HOUSE OF REPRESENTATIVES

JUNE 29, 1999

Ms. WOOLSEY introduced the following bill; which was referred to the Committee on Education and the Workforce

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# A BILL

To amend the Elementary and Secondary Education Act of 1965 to provide grants to local educational agencies to encourage girls to pursue studies and careers in science, mathematics, and technology.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

**SECTION 1. GO GIRL GRANTS.**

Part A of title III of the Elementary and Secondary Act of 1965 is amended by adding at the end the following new subpart:

**"Subpart 5—Grants to Schools**

**"SEC. 3161. SHORT TITLE.**

"This subpart may be cited as the 'Getting Our Girls Ready for the 21st Century Act (Go Girl Act)'.

**"SEC. 3162. FINDINGS.**

"Congress finds the following:

"(1) Women have historically been underrepresented in mathematics, science, and technology occupations.

"(2) Female students take fewer high-level mathematics and science courses in high school than male students.

"(3) Female students take far fewer advanced computer classes and tend to take only the basic data entry and word processing classes compared to courses that male students take.

"(4) Female students earn fewer bachelors, masters, and doctoral degrees in mathematics, science, and technology than male students.

"(5) Early career exploration is key to choosing a career.

"(6) Teachers' attitudes, methods of teaching, and classroom atmosphere affect females' interest in nontraditional fields.

"(7) Stereotypes about appropriate careers for females, a lack of female role models, and a lack of

basic career information significantly deters girls' interest in mathematics, science, and technology careers.

"(8) Females consistently rate themselves significantly lower than males in computer ability.

"(9) By the year 2000, 65 percent of all jobs will require technological skills.

"(10) Limited access is a hurdle faced by females seeking jobs in mathematics, science, and technology.

"(11) Common recruitment and hiring practices make extensive use of traditional networks that often overlook females.

**"SEC. 3163. PROGRAM AUTHORITY.**

"(a) IN GENERAL.—The Secretary is authorized to provide grants to and enter into contracts or cooperative agreements with local educational agencies to provide subgrants to elementary and secondary schools to encourage the ongoing interest of girls in science, mathematics, and technology and to prepare girls to pursue undergraduate and graduate degrees and careers in science, mathematics, or technology.

"(b) APPLICATION.—

"(1) IN GENERAL.—To be eligible to receive a grant under this subpart, a local educational agency

shall submit an application to the Secretary at such time, in such form, and containing such information as the Secretary may reasonably require.

"(2) CONTENTS.—The application referred to in paragraph (1) shall contain, at a minimum, the following:

"(A) A specific program description, including the content of the program and the research and models used to design the program.

"(B) A description of the collaboration between elementary and secondary schools to fulfill goals of the program.

"(C) An explanation regarding the recruitment and selection of participants.

"(D) A description of the instructional and motivational activities planned to be used.

"(E) An evaluation plan.

**"SEC. 3164. ELEMENTARY SCHOOL PROGRAM.**

"(a) SELECTION.—Local educational agencies shall select elementary schools to provide services that—

"(1) encourage girls in grades 4 and higher to enjoy and pursue studies in science, mathematics, and technology;

"(2) acquaint girls in grades 4 and higher with careers in science, mathematics, and technology; and

"(3) educate the parents of girls in grades 4 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science, mathematics, and technology and enlist the help of the parents in overcoming these difficulties.

"(b) USES OF FUNDS.—An elementary school that receives a subgrant under this subpart may use such funds for the following:

"(1) Tutoring in reading, science, mathematics, and technology.

"(2) Mentoring relationships, both in-person and through the Internet.

"(3) To pay the costs of attending events and academic programs in science, mathematics, and technology.

"(4) After-school activities designed to encourage the interest of girls in grades 4 and higher in science, mathematics, and technology.

"(5) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.

"(6) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.

"(7) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.

"(8) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.

"(9) Purchasing and disseminating information to parents of girls in grades 4 and higher that will help parents to encourage their daughters' interest in science, mathematics, and technology.

**"SEC. 3165. SECONDARY SCHOOL PROGRAM.**

"(a) SUBGRANTS TO SECONDARY SCHOOLS.—Local educational agencies shall select secondary schools to provide services that—

"(1) encourage girls in grades 9 and higher to major in science, mathematics, and technology in a postsecondary institution;

"(2) provide academic advice and assistance in high school course selection;

"(3) encourage girls in grades 9 and higher to plan for careers in science, mathematics, and technology; and

"(4) educate the parents of girls in grades 9 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science.

mathematics, and technology and enlist the help of the parents in overcoming these difficulties.

"(b) USES OF FUNDS.—A secondary school that receives a subgrant under this subpart may use such funds for the following:

"(1) Tutoring in science, mathematics, and technology.

"(2) Mentoring relationships, both in-person and through the Internet.

"(3) To pay the costs of attending events and academic programs in science, mathematics, and technology.

"(4) To pay 50 percent of the cost of an internship in science, mathematics, or technology.

"(5) After-school activities designed to encourage the interest of girls in grades 9 and higher in science, mathematics, and technology, including the cost of that portion of a staff salary to supervise these activities.

"(6) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.

"(7) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.

"(8) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.

"(9) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.

"(10) Visits to institutions of higher education to acquaint girls with college-level programs in science, mathematics, or technology, and to meet with educators and female college students who will encourage them to pursue degrees in science, mathematics, and technology.

**"SEC. 3166. DEFINITIONS.**

"In this subpart:

"(1) The term 'local educational agency' has the same meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801), except that in the case of Hawaii, the District of Columbia, and the Commonwealth of Puerto Rico, the term 'local educational agency' shall be deemed to mean the State educational agency.

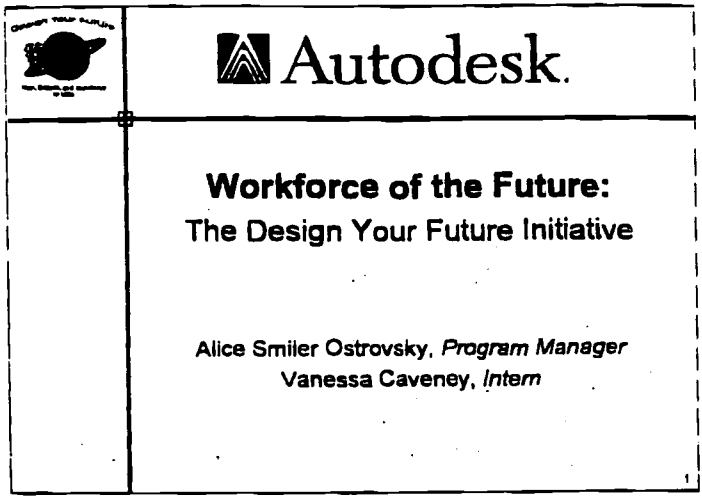
"(2) The term 'Secretary' means the Secretary of Education.

**"SEC. 3167. AUTHORIZATION OF APPROPRIATIONS.**

"For the purpose of making grants and contracts under this subpart, there are authorized to be appropriated $50,000,000 for fiscal year 2000 and such sums as may be necessary for each of the 4 succeeding fiscal years.".

○

***APPENDIX C - STATEMENT OF MS. ALICE SMILER OSTROVSKY, PROGRAM MANAGER, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA***




We are here today representing Autodesk, Inc. and the Design Your Future initiative.
About Autodesk:
Headquartered in San Rafael, CA. Autodesk is the world's leading supplier of PC design software and digital content creation. The company's 2D and 3D products are used in many industries for architectural and mechanical design, mapping, civil engineering, surveying, film and video production, video game development and Web content development. Discreet, a new division of Autodesk formed by combining the Kinetix operations with the Discreet Logic acquisition, develops and delivers systems and software for visual effects, 3D animation, editing, broadcast graphics and feature films. The fourth largest PC software company in the world, Autodesk has four million customers in over 150 countries.

## About Us

**Alice Smiler Ostrovsky:**

- Autodesk DYF Program Manager since January 1997
- Previous Education Specialist for School-to-Work non-profit
- Former middle and high school teacher, counselor, coordinator of grant-funded programs

**Vanessa Caveney:**

- Novato High School graduate, June 1999
- Deferring college admission to travel in Europe, plan to pursue a BFA in digital art and design

## Background Information: The Workforce Gap

- A shortage of local employees is costing Bay Area high-tech companies as much as $4 billion per year. (Joint Venture Silicon Valley "Workforce Initiative Study," May 18, 1999)
- Nationally, in the IT sector alone, 346,000 programmer, systems analyst and computer scientist positions have gone unfilled (Information Technology Association of America study, 1998)

3

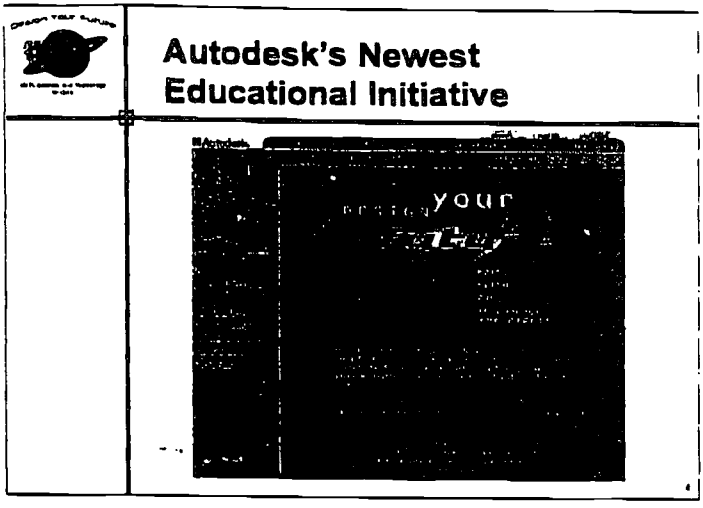
Students need to be prepared to participate in a technology-savvy economy and workforce.

Recent statistics are a wake-up call to the effects an unprepared workforce have on the growth of our economy: (refer to slide)

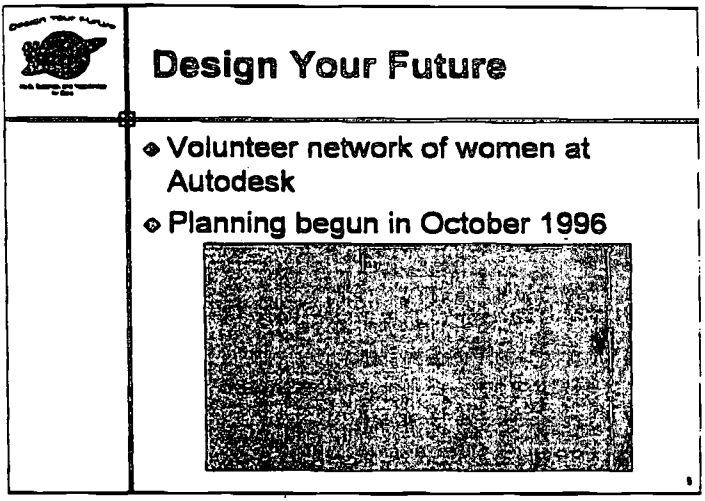
As noted in the JVSV 1999 Workforce Study: "In addition to costs to employers, workforce shortages in Silicon Valley also drive significant costs to individuals and the community." ("Workforce Study: An Analysis of the Workforce Gap in Silicon Valley")

The opportunities for employees to enter the high-tech workforce are only increasing, and here in the Bay Area the opportunities are particularly rich. The needs Autodesk has identified which have led us to focus on education are economically as well as community driven. Today's students are tomorrow's innovators. These are exciting and potentially lucrative careers which will keep our children in our community while continuing to grow our local and national economy.

3




And those students, those potential future innovators whom we are most concerned are being left out of the technology future: *girls and young women.* Hence our commitment to this newest of our educational initiatives (Design Your Future) and our support of the "Go Girl" Act.




Design Your Future is made up of a volunteer network of women at every level of the company. Motivated by CEO, Carol Bartz who herself is one of only a few women heading a large technology company, a group of women managers got together to research how they could keep the drive for math and science alive in girls as they prepare for 21st century careers.

(refer to Mission)

5

## A Word from our CEO

"The number of women in technology today is appalling. As a corporation, we cannot allow young girls to be left out of the technology revolution because they lack fundamental skills or interest in math or science."

– Carol Bartz

At Autodesk, we are lucky to have a powerful role model in Carol Bartz. But as she is often quoted: (see slide)

6

## Girls and Technology - What's the problem?

- **Girls make up a small percentage of students in computer science and computer design classes, and the gender gap widens from grade eight to eleven. When they do enroll in computer classes, they are significantly more likely to enroll in low-end clerical or data-entry classes (the '90s version of typing class).** (American Association of University Women, "Gender Gaps: Where Schools Still Fail Our Children," September 1998)

- **Boys exhibit higher computer self-confidence and a more positive attitude about computers than do girls.** (AAUW, "Gender Gaps," 1998)

Inspired by Carol Bartz, our task force researched the issues surrounding girls' achievement in math and science, and the gaps in girls' technology usage. Here are some of the most recent findings:

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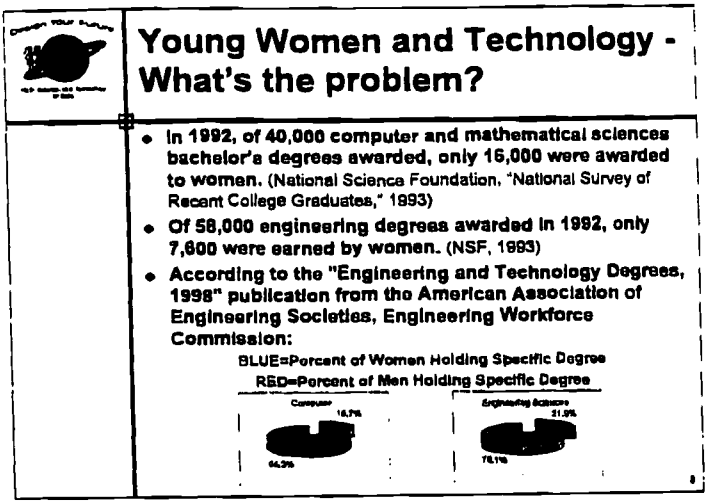


The gender gaps regarding interest in and pursuit of technology-related fields persist from middle and high school through university:

(refer to slide)

And some research indicates that in computer science the statistics are getting worse rather than better:
"The proportion of women earning bachelor's degrees in computer science decreased from 36 percent in 1983 to 28 percent in 1993" according to the National Science Foundation's "Women, Minorities, and Persons with Disabilities in Science and Engineering: 1996" report.

## School-to-Career and Girls

- A recent study of 14 School-to-Work sites found that more than 90% of the young women were clustered in five traditionally female occupations. (AAUW, "Gender Gaps," 1998)
- A 1997 review of School-to-Work initiatives across the country similarly found that "boys tended to dominate--almost to the point of exclusion--in many industrial and engineering programs." (AAUW, "Gender Gaps," 1998)
- In today's economy, women cluster in only 20 of the more than 400 job categories, and two out of three minimum-wage earners are women. (AAUW, "Gender Gaps," 1998)

Autodesk, Inc. and the Autodesk Foundation have been full participants in the expansion of career awareness opportunities spurred by the Federal School-to-Work Act, however the research is showing that we need to do more in regards to gender equity and nontraditional careers:

"Simply offering boys and girls the same menu of career choices without actively encouraging them to consider nontraditional fields does little to change the status quo." (AAUW, "Gender Gaps," 1998)

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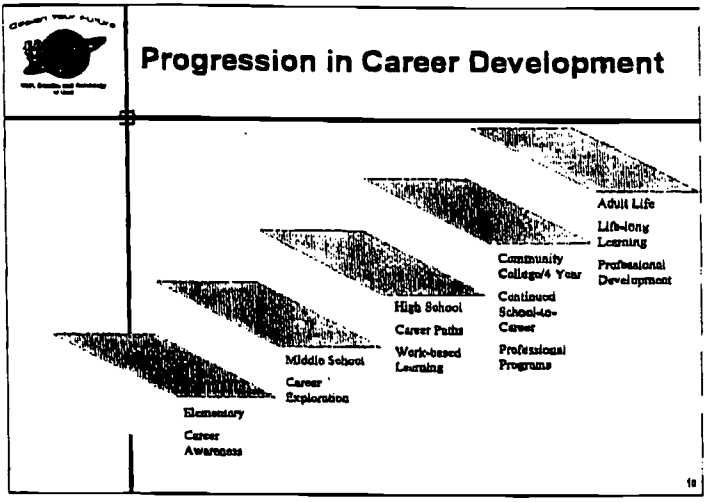
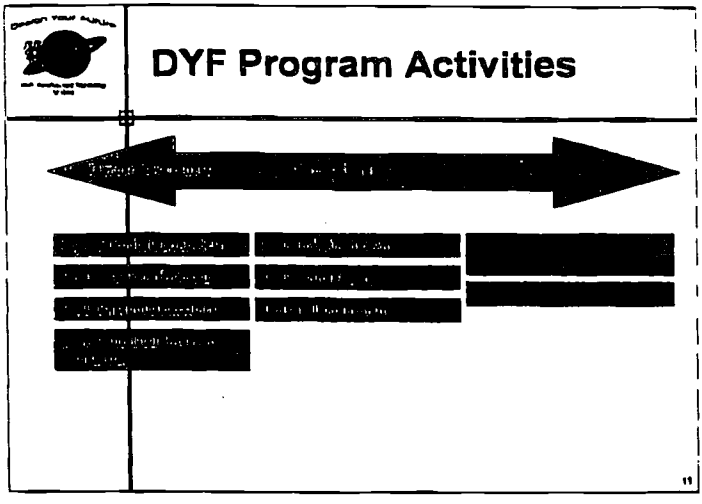
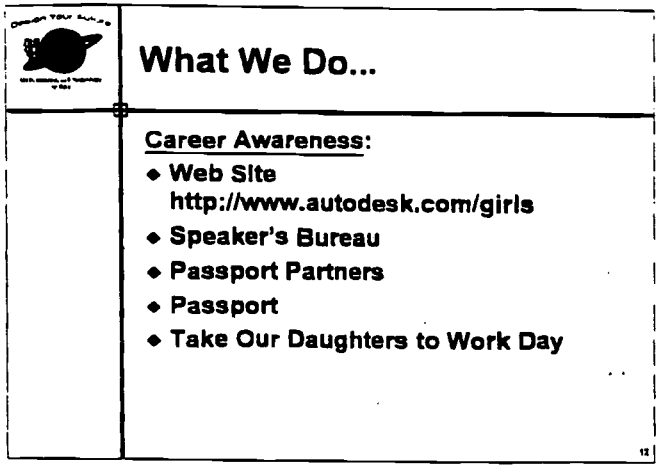



The premise of our initiative is based on a quality school to career progression: to provide the appropriate opportunities at the appropriate stages throughout education, hopefully leading to successful career choices and lifelong learning -- clearly a necessity today and tomorrow in our fast-growing global and technology-driven economy.




Like the "Go Girl Act" which provides grants for schools to support a range of programs to encourage girls grades 4-12 in science, mathematics, and technology, our initiative is designed along a continuum. Our various program activities range from reaching many girls at a basic awareness level (e.g. the website) to reaching a few girls intensively (e.g. internships). The continuum follows girls through the progression from career awareness to career exploration to career paths. Through these many activities, we can offer girls the appropriate experience for where they are, and we also are able to engage a maximum number of employee volunteers, by offering opportunities that fit with their availability and expertise.

11



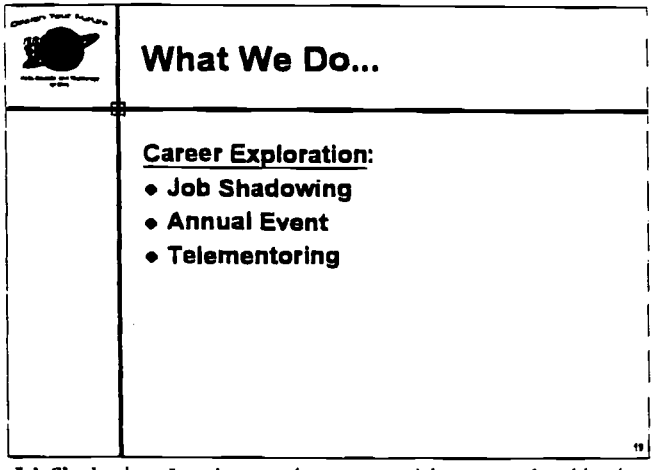

• **Web Site**: The award-winning DYF web site is designed and maintained by female interns. It provides links to resources and introduces girls to inspiring women role models. It is both a learning experience for the interns who create it, and a rich resource for the girls, teachers, and parents who use it.

• **Speaker's Bureau**: Professional women from throughout the company volunteer their time to visit classrooms and educational events to share their experience and advice. Benefits from this program have included increasing awareness on the part of boys that women hold important roles in the high-tech workplace.

• **DYF Passport Partners**: This mentoring program partners Autodesk female employees with 7th grade girls from a local middle school to visit Autodesk or other organizations that highlight math, science, and technology. These experiences fulfill the completion of the DYF Passport. This one-on-one mentoring, conducted in partnership with the school, provides girls with special attention and the knowledge that they have many opportunities open to them at a pivotal point socially and academically.

• **DYF Passport**: A reflection activity, based on the "Passport to Science" developed by Advocates for Women in Science, Engineering and Mathematics" (AWSEM) which was funded by the National Science Foundation. This journal activity encourages girls to reflect on their interests and explore opportunities. Hundreds of Passports have been sent to teachers and girls around the country, and several girls take advantage of the on-line version on our website.

• **Take Our Daughters to Work Day**: An annual event held in April, originated by the Ms.Foundation. Employees bring their daughters or other middle and high school aged young women to Autodesk for the day to participate in a series of activities. The DYF career awareness-based model for the event has inspired employees at Autodesk locations around the country to sponsor their own local events, as well as encouraging other companies to get on board.

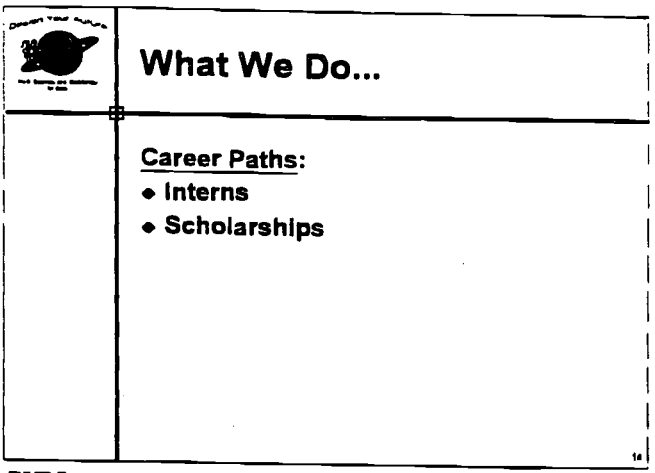



• **Job Shadowing**: Introduces students to potential careers and enables them to experience the workplace as they follow an Autodesk employee on his/her work schedule for 1-2 hours. Job Shadow visits also include speakers and interactions with interns in an effort to give visitors a "behind the scenes" experience as well as a well-rounded view of the work setting. Through tailoring the day's activities to the curriculum and focus of the visiting group, we have been able to assist teachers to expand their classrooms beyond the walls of the school into the work-place. This activity has benefited dozens of middle and high school girls whose eyes are opened to how much of what they're learning in school is used in the "real world."

• **DYF Annual Event**: Middle school girls work side by side with Autodesk female professionals on a series of focused educational activities. The Event balances hands-on technology with teamwork, public speaking, and exposure to many women role models. Over 150 girls have participated thus far in the Event, one of our most successful activities according to teachers, administrators, parents, and the girls themselves.

• **DYF Telementoring**: A new program being piloted Fall 1999, based on the HP Telementoring program, matches a woman at Autodesk with a female middle or high school student to begin a mentoring relationship through email. The mentor and student collaborate on an Internet research project centered on a career and education plan. The mentor and student correspond over a 14-week period, approximately 45 minutes per week.

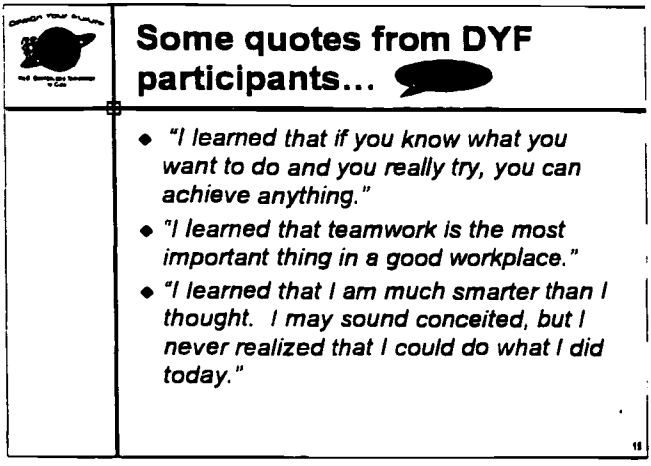
13




• **DYF Interns**: Female interns, ages 14-19, work together with Autodesk employees to develop and maintain the DYF website, participate in DYF documentation projects, and represent the initiative to the public. The team environment presents girls with an array of career options and helps them understand the value of pursuing related fields of study. Since its inception, DYF has employed 12 young women from diverse backgrounds and levels of experience. The Autodesk High School Internship program as a whole has received national recognition as a model for work-based learning, and has provided approximately 300 students with quality internship experiences.

• **DYF Scholarship**: Funded by Autodesk's Piracy Prevention department, the scholarship is available to female interns, past and present, who are currently enrolled in a two-year or four-year undergraduate program. The scholarship is designed to encourage and support young women who have had a taste of the professional world of high-tech by interning at Autodesk and are pursuing higher education building upon their experience with the company. Thus far, in only a year of operation, the DYF Scholarship has helped six girls pursue higher education, granting a total of $30,000 in awards. And in each case, the young woman's educational paths have been positively impacted by the hands-on technology experience they've gained in their internship at Autodesk.

14




Are we making a difference? The girls themselves say it best; here are some quotes from recent middle school participants in our Annual Event:

(refer to slide)

Design Your Future is just one small program, completing it's second year of implementation having reached several hundreds of girls. Through this initiative, Autodesk has made a clear commitment to help girls succeed in math, science, and technology. But it takes more than the commitment of one company to ensure that *all girls* have access to these opportunities. Legislation such as the "Go Girl Act" can serve as a catalyst to guaranty more opportunities for girls, which will in turn improve their career options, and will contribute to a stronger, more balanced future workforce and economy.

One such young woman, Vanessa Caveney, is here today to speak to you about the powerful effect her exposure to DYF has had in her life. Each student's experience is unique, but Vanessa's story represents common messages from those who have benefited from these programs. We *are* making a difference, and I firmly believe that as we begin to follow our participants from middle school through high school, on to college and careers, in the foreseeable future Carol Bartz, Janese Swanson (founder of GirlTech), and Carly Fiorina (new CEO of Hewlett-Packard Co.) will no longer be anomalies.

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**Alice Smiler Ostrovsky**

8 Roosevelt Ave. • San Rafael, CA 94903 • Tel. (415) 507-6076 • alice.ostrovsky@autodesk.com

**PROFESSIONAL EXPERIENCE**

**PROGRAM MANAGER**, Design Your Future, Autodesk, Inc., San Rafael, CA (1997
- manage award-winning website, produced by team of high school student interns;
- coordinate all aspects of multi-faceted career awareness initiative designed to provide practical, inspiring, hands-on opportunities for girls to become aware of, explore, and pursue math, science, and technology-based careers.

**EDUCATION SPECIALIST**, New Ways Workers National, San Francisco, CA (1996
- responsible for primary support to sites, including: program related issues; leadership at school-related events; strengthening communication between sites and partnering agencies, schools and district entities; site visits.
- provided training on full continuum of school-to-work activities, work-based learning, project-based learning, integrated curriculum, and issues concerning youth in the workplace.
- managed speaker contacts, fact sheets, best practices, and training on Child Labor Law, minimum wage, sexual harassment, and welfare reform.
- facilitated work groups on Work-based Learning, Portfolio development, Site Marketing, and coordinated Northern & Central California School-to-Career Practitioners Network.

**HEALTHY START COORDINATOR**, SFUSD, Benjamin Franklin Middle School, San Francisco, CA (1995-
- responsible for all aspects of grant, including: hiring and supervising Parent Liaisons and grant writer, needs assessments, budget allocation, teacher planning, culminating in the receipt of three-year/ $400,000+ operational grant.
- facilitated Western Addition Health & Wellness Collaborative, and achieved a collaborative Memorandum of Understanding among twenty-three agencies.
- published student-created Community Resource Guide in collaboration with Allies for Education, and maintained all Peer Resource program activities.

**PEER RESOURCE COORDINATOR**, SFUSD, Benjamin Franklin Middle School, San Francisco, CA (1991-9
- implemented all aspects of program including: Peer Tutoring, Peer Education, and Conflict Mediation.
- trained 7th and 8th grade Peer Helpers through Elective classes.
- acted as student advocate and crisis intervention counselor, working with Administration, counselors, teachers, volunteers, and parents.
- produced Peer Education presentations including: substance abuse prevention, AIDS/STD awareness, teen sexuality, elementary to middle school transition, anti-stereotyping.
- created new opportunities for student leadership: Kids Day, Multicultural talent show, Student Court, Urban/Suburban Exchange Project, and established business and school-to-school partnerships.

**COUNSELOR/ADVISOR**, CHOICES Program/Community College of Rhode Island, Providence, RI (1990-91
- conducted classes in life skills curriculum in urban secondary schools,
- provided crisis intervention and follow-up counseling to at-risk students dealing with: teenage pregnancy, suicide attempts, rape, and dropping out.
- maintained client files: case management reports, evaluations, pre- and post- testing.

**RESEARCHER**, Central High School, Providence, RI (1990)
- researched and reported to the Assistant Superintendent on incidents of racial violence in high schools nationwide; possible programs, security measures, curricular changes.

**PROGRAM ASSISTANT**, National Counsel of Christians & Jews, Providence, RI (1990)
- designed and led after-school interracial sensitivity workshops for teenagers.

**CONSULTANT**, Alternate Learning Project, Providence, RI (1989-90)
- initiated, implemented, and documented an original curriculum entitled "Stereotypes" to foster interracial understanding and sensitivity among public school teenagers.

**TEACHING & RESEARCH ASSISTANT**, Education Dept., Brown University, Providence, RI (1988-90)
- acted as first reader for papers, Adolescent Psychology, completed library literature searches and catalogued professor's materials for courses.
- aided Social-psychologist in design, implementation, and data analysis of school study.

**Alice Smiler Ostrovsky**

8 Roosevelt Ave. • San Rafael, CA 94903 • Tel. (415) 507-9506 • alice.ostrovsky@autodesk.com

**EDUCATION**

Brown University: B.A. with honors, Educational Studies and Comparative Literature

OTHER:

University of San Francisco: Teacher Credentialing Program, received Single Subject Certification in English

Middlebury College: Summer Intensive Spanish I Program

**PROFESSIONAL TRAINER**

Adults:

- Autodesk College Intern Program "Leadership Concepts," 1999
- San Francisco STEP School-to-Career Partnership "Learning Beyond Four Walls Teacher Institute," 1997
- Workforce Silicon Valley "Leadership Institute," West Valley Community College, 1997
- Bay Area School Reform Collaborative "Collaborative Assembly," 1997
- New Ways Workers "Annual Site Staff Retreat," 1997
- Department of Health & Human Services "Kids, AIDS & You," U.N. Federal Building, 1995 & 1996
- S.F. Peer Resource Programs "Training of Trainers," Far West Labs, 1992-95
- SFUSD Health Programs Office "Conflict Mediation Middle School Training of Trainers," 1994
- S.F. Peer Resource Programs "Middle School Staff Retreat," 1994
- San Mateo County Office of Education, Staff Development Conference, 1994
- SFUSD Middle School Teacher's Conference on Diversity, 1994
- SFUSD "National Symposia on Comprehensive School Health Programs," 1994
- Benjamin Franklin Middle School, Staff Development, "Kids Day," 1993 & 1994

Youth:

- Thornton Jr. High, Fremont Unified School District, "Conflict Mediation," Fremont, CA 1995
- California Association of Peer Programs, Youth conference, Sacramento & L.A., 1994 & 1995
- Benjamin Franklin Middle School, "Sixer Mixer," 1994
- Benjamin Franklin Middle School, "Kids Days," 1993-1994
- S.P. Peer Resource Programs "Students Are Resources Conference," Fort Mason, 1992-95
- Project M-POWER "Conflict Mediation Youth Training," James Denman Middle School, 1993

**OTHER TEACHING EXPERIENCE**

- Galileo Summer High School, San Francisco, CA: ESL Composition, Intermediate level, 9th-11th grade, 1994
- Benjamin Franklin Middle School, San Francisco, CA: 8th grade English and 8th grade Honors English, 1994

**PROFESSIONAL ORGANIZATIONS & AFFILIATIONS**

- Member, Northern & Central CA School-to-Career Practitioners Network
- Member, Coaches Network, Bay Area School Reform Collaborative
- Member, California Teachers Association
- Former Member, National Urban Alliance
- Former Member, UCSF/Mt. Zion Hospital Violence Prevention Advisory Board
- Former Member, Western Addition Health & Wellness Collaborative

**OTHER SKILLS**

COMPUTER LITERACY: PC -- Microsoft Office 97/NT – Microsoft Word, Powerpoint, Excel, Outlook, Access
Apple/Macintosh -- Microsoft Word, Microsoft Works, MacWrite, Cricket Graph, Printshop
Web -- HTML, Netscape Navigator, Internet Explorer
Graphics – Photoshop 5.0

LANGUAGE LITERACY: French (intermediate spoken, written, and read)—one year residence in Paris, France
Spanish (basic spoken and read)—moderate travel in Mexico, Latin America, Spain

PERFORMANCE: Theatrical and dance experience; all aspects of production.

## Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

| | | |
|---|---|---|
| Your Name: Alice Smiler Ostrovsky | | |
| 1. Are you testifying on behalf of a Federal, State, or Local Governmental entity? | Yes | No X |
| 2. Are you testifying on behalf of an entity other than a Government entity? | Yes X | No |
| 3. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1997: None. | | |
| 4. Other than yourself, please list what entity or entities you are representing: Autodesk, Inc. | | |
| 5. If your answer to question number 2 is yes, please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question number 4: Program Manager, Design Your Future | | |
| 6. If your answer to question number 2 is yes, do any of the entities disclosed in question number 4 have parent organizations, subsidiaries, or partnerships to the entities for whom you are not representing? | Yes | No X |
| 7. If the answer to question number 2 is yes, please list any federal grants or contracts (including subgrants or subcontracts) which were received by the entities listed under question 4 since October 1, 1997, including the source and amount of each grant or contract: N/A | | |

Signature: Alice Smiler Ostrovsky Date: 8/25/99

*Please attach this sheet to your written testimony*

***APPENDIX D - STATEMENT OF MS. VANESSA CAVENEY, INTERN, DESIGN YOUR FUTURE, AUTODESK INCORPORATED, SAN RAFAEL, CA***

I have always had a passion for the arts. I knew that I wanted to make a living out of my art, but I didn't know how. I soon learned that there was a reason why they called them "starving artists." Some suggested that I take a different career path - one more technical and mathematical - something I could make money off of. But I thought there was no way; I viewed computers as big hunks of machinery that were far too complicated for me to ever learn. Time went by and I became more frustrated and worried about my career goals.

One day, my mother brought to my attention that I could have the best of both worlds - make my art, and make money too. But to do this, I would have to learn computers. "How?" I asked. "Where can I possibly get that kind of experience?" I certainly wasn't getting it at school. I could type, but basically, I was in the technological dark. In April of 1998, I met Alice. I talked to her about my career goals — and she told me about the Design Your Future program and suggested that I apply for an internship. I would get the technical experience I needed and be in a professional, corporate environment that supported girls in technology. I was very excited, but also very doubtful that I had the skills to make it through the first interview.

Nevertheless, I applied, and was hired as the DYF intern Design Specialist. Right away, I found myself sitting in a two-day intensive HTML training class. I couldn't believe it. As fast as I could say "Hyper-Text Mark-up Language," I knew how to code a web page. Soon after, they presented me with Adobe Photoshop 5.0. From then on, the rest is history. I now have extensive Photoshop and HTML skills. I can edit audio clips and put them on the web. I recently designed a poster in Adobe Illustrator and am learning new things everyday, like JAVAscript and Flash.

At 18, and fresh out of high school, I have skills for the digital design industry that are marketable *right now*. Not only do I feel confident in my technical skills, but I have become more comfortable with public speaking, and media affairs - another part of my internship with DYF. Every time that I step into the office, I am faced with great female mentors, like Alice, who are showing me that I can get to where I want to be. All of this adds up to one very special program that changed my life in many ways. Most importantly, Design Your Future challenged me to set a goal for myself, and helped me achieve it. I believe that every girl would benefit from these kinds of programs and opportunities. Sometimes, schools don't push girls to even consider a technical field. This was the case for me. It was only through the DYF initiative, that I saw the door open to incredible possibilities. As of right now, I am the only one of my friends actively pursuing a technical career. I can only imagine where they would be had they been faced with the chance to gain experience like I have and talk to female mentors earlier. I speak from my own experience when I say that this internship was the best thing that ever happened to me.







60-697 99 - 4

**PERSONAL INFORMATION**: Please provide the committee with a copy of your resume (or a curriculum vitae) or just answer the following questions:

A. Please list any employment, occupation, or work related experiences, and education or training which relate to your qualifications to testify on or knowledge of the subject matter of the hearing:

Employment: Part-time Intern, Autodesk, Inc. - Design Your Future.
- work related experiences: Web design, graphic art, public speaking, program support

Education: Novato High School graduate, June 1999, Novato, CA.
Founder of Equality NOW club, Novato H.S.

B. Please provide any other information you wish to convey to the Committee which might aid the members of the Committee to understand better the context of your testimony:

N/A

*Please attach to your written testimony*

Committee on Education and the Workforce.
Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: Vanessa Caveney

| | Yes | No |
|---|---|---|
| 1. Are you testifying on behalf of a Federal, State, or Local Governmental entity? | | X |
| 2. Are you testifying on behalf of an entity other than a Government entity? | X | |

3. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1997:

None.

4. Other than yourself, please list what entity or entities you are representing:

Autodesk, Inc.

5. If your answer to question number 2 is yes, please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question number 4:

Intern, Design Your Future

| | Yes | No |
|---|---|---|
| 6. If your answer to question number 2 is yes, do any of the entities disclosed in question number 4 have parent organizations, subsidiaries, or partnerships to the entities for whom you are not representing? | | X |

7. If the answer to question number 2 is yes, please list any federal grants or contracts (including subgrants or subcontracts) which were received by the entities listed under question 4 since October 1, 1997, including the source and amount of each grant or contract:

N/A

Signature: Vanessa Caveney Date: 8/25/99

*Please attach this sheet to your written testimony*

***APPENDIX E - STATEMENT OF DR. GRETA VIGUIE, ASSISTANT SUPERINTENDENT, COTATI-ROHNERT PARK SCHOOL DISTRICT, ROHNERT PARK, CA***

*Technology in Schools - Preparing for the 21st Century*
Petaluma Community Center
Petaluma, California

**Greta Viguie, Ed.D.**
Assistant Superintendent
Cotati-Rohnert Park Unified School District
Rohnert Park, California

## Technology High School Program

Today, the Technology High School Program opened its doors to its first 60 students. When built out this program will serve 400 students. The Technology High School program will offer students enrolled at Rancho Cotate High School the opportunity to experience rigorous integrated math, science, and engineering curriculum utilizing project-based learning and technology as key learning strategies and tools. Students will enroll in their high school math, science, and engineering courses in the Technology High School Program located at Sonoma State University, while taking English, social studies, physical education and electives at Rancho Cotate High School.

The founding partners involved in the development of this program were the Cotati-Rohnert Park Unified School District, Sonoma State University, Hewlett-Packard, Autodesk Foundation, and Santa Rosa Junior College. These founding partners identified the following shared goals for the Technology High School Program:

- To increase the numbers of students who enter college and the work force with a commitment to study and seek a career in advanced math, science, and technology;
- To maximize existing resources and partnerships;
- To build the capacity of K-12 and university faculty to act as change agents in the reform of education in other Sonoma County schools and universities state-wide;
- To create a high school program that is fully competitive with the best high schools.

The focus of math, science, and engineering was selected in response to the needs identified by the community, local business and industry, the Sonoma County Economic Vitality Report, The U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS Report), The National Assessment of Educational Progress, international science tests, local standardized testing data, and the California Mathematics and Science Standards and Frameworks.

Considering all of the above information, the Technology High School Feasibility Committee determined that a logical theme for a local partnership high school program would be math, science, and technology education, following the National Science Foundation's broad definition of technology as "a field of study that involves the application of knowledge, resources, materials, tools, and information in designing, producing and using products.

structures (physical and social), and systems to extend human capability to control and modify natural and human-made environments."

Substantial research exists to support the assertion that all students learn more and retain it better if they are involved in active and applied learning as opposed to passive and theoretical learning. The best school the committee could imagine, then, would have a curriculum that is activity or project-based.

The Technology High School Program's innovative integrated project-based curriculum was written collaboratively by mathematics and science teachers, university professors, and engineers from business and industry. The courses have been written so that the curriculum is integrated within and across the disciplines. Connections are made between the principles that the students study in mathematics, science, and engineering which foster deeper, long lasting understanding of the concepts being studied.

The partners in this program believe that with the implementation of this curriculum along with project-based instruction and the use of high powered technology tools, we will reach our mission of increasing the numbers of students who enter college or the workforce with a commitment to study advanced mathematics, science, and technology. Simultaneously, we will create a national model for the reform of high school education.

The planning committee realized that this program would require a substantial initial investment in facilities and equipment. The committee believed that, with careful planning and assiduous searching, adequate funding from external sources, including foundations, the state, and business partners could be identified to make establishing and supporting a project-based math, science, and technology curriculum feasible.

Since the design of the Technology High School, the Coordinator of the program and myself have made many presentations to Sonoma County high tech businesses. The number of business partners continues to expand. Our partners are demonstrating their commitment to our student's education by providing resources and learning opportunities such as mentoring, job shadowing, internships, work experience, and monetary, equipment, and materials donations.

Through the planning of the Technology High School Program, a variety of resources have been and will continue to be developed. These resources include a $250,000 California State Specialized Secondary School Planning and Implementation Grant, thirty complete computer systems from Hewlett-Packard, monetary donations from local partners such as Rheodyne, consultants for curriculum development from Sonoma State University and Hewlett-Packard, and assistance in the design of the Technology High School Program Business Plan from Hewlett-Packard.

Every year for the next several years we will be adding another cohort of sixty students to the program. With the additional students comes the need for more materials and technology

equipment. In order to maintain the growth of the program alternative funding sources must continually be developed.

The Technology High School Program is an excellent example of the district core value: we work as a team. We could not have designed and implemented this program without our partners. The partners in the project have learned that by sharing resources and power and working together as a team toward common goals, we are better educating our students.

## Committee on Education and the Workforce

Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

| Your Name: Greta Viguie | | |
|---|---|---|
| 1. Are you testifying on behalf of a Federal, State, or Local Governmental entity? | Yes X | No |
| 2. Are you testifying on behalf of an entity other than a Government entity? | Yes | No X |
| 3. Please list any federal grants or contracts (including subgrants or subcontracts) which you have received since October 1, 1997: | | |
| 4. Other than yourself, please list what entity or entities you are representing: | | |
| 5. If your answer to question number 2 is yes, please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question number 4: | | |
| 6. If your answer to question number 2 is yes, do any of the entities disclosed in question number 4 have parent organizations, subsidiaries, or partnerships to the entities for whom you are not representing? | Yes | No |
| 7. If the answer to question number 2 is yes, please list any federal grants or contracts (including subgrants or subcontracts) which were received by the entities listed under question 4 since October 1, 1997, including the source and amount of each grant or contract: | | |

Signature: Greta Viguie Date: August 24, 1999

*Please attach this sheet to your written testimony*

**PERSONAL INFORMATION**: Please provide the committee with a copy of your resume (or a curriculum vitae) or just answer the following questions:

A. Please list any employment, occupation, or work related experiences, and education or training which relate to your qualifications to testify on or knowledge of the subject matter of the hearing:

Please see attached resume.

B. Please provide any other information you wish to convey to the Committee which might aid the members of the Committee to understand better the context of your testimony:

*Please attach to your written testimony*

**Margaret A. Viguie**
Cotati-Rohnert Park Unified School District
1601 East Cotati Ave.
Rohnert Park, CA 94928
(707) 792-4708 (business)

## EDUCATION

Ed.D.
Educational Leadership
University of La Verne
La Verne, California
1996

M.A.
Special Education
San Francisco State University
San Francisco, California
1979

B.S.
Elementary Education
Delaware State College
Dover, Delaware
1971

## CREDENTIALS

Administrative Services
K-12

Physically Handicapped Specialist
Life

Standard Elementary
Life

## PROFESSIONAL EXPERIENCE

1993 - present **Assistant Superintendent, Curriculum and Instruction**
**Cotati-Rohnert Park Unified School District**

Responsible for curriculum and instruction and public relations for a 7800 student K-12 school district. Works directly with the Superintendent to develop the District Strategic Plan. Supervises the Director of Technology, Coordinator of Special Education, and the Coordinator of Special Projects.

1991 - 1993 **Director, Curriculum and Instruction**
**Cotati-Rohnert Park Unified School District**

Responsible for all curriculum and instruction development and implementation for a 7600 student K-12 district. Additional responsibilities included testing and evaluation, staff development, mentor teacher program, K-12 instrumental music program, and summer school.

1987 - 1991 **Director, Student Services**

Responsible for all student management and special education for a 7600 student K-12 district. Additional responsibilities included testing and evaluation, consolidated application programs, and the gifted and talented program.

1986 - 1987 **Principal**
**Cotati-Rohnert Park Unified School District**
**Rohnert Park, California**

Responsible for all aspects of running an elementary school which was named a California Distinguished School.

1983-1986 **Project Manager**
**Santa Rosa City Schools**
**Santa Rosa, California**

Responsible for the management of the School Improvement, Title 1, and EIA-LEP programs at two elementary schools.

1979 - 1983 **Special Education Teacher**
**Santa Rosa City Schools**
**Santa Rosa, California**

Taught physically handicapped children who were from three to twelve years old over a four year period.

1971-1972 **Teacher, Elementary**
**Department of Defense**
**Seoul, Korea**

Taught kindergarten part-time on Yungson Army Base in Seoul, Korea.

## SKILLS AND EXPERIENCES

### Curriculum and Instruction

- Develops and implements K-12 curriculum
- Selects and aligns instructional materials with the written curriculum
- Administers the district testing and evaluation programs
- Designs and implements staff development programs for certificated and classified staff
- Supervises principals with the superintendent
- Develops the district strategic plan with superintendent
- Chairs the district Goals 2000 Local Panel
- Administers the district Consolidated Application Programs
- Develops and implements the District Technology Plan

**Human Resources**

- Plans and implements recruitment, selection, assignment, and evaluation of certificated and classified personnel
- Develops job descriptions, determines scope of recruitment process, paper screening, reference checks, develops interview questions, selects members of interview teams and selects candidates
- Supervises and evaluates certificated and classified personnel
- Administers employee contracts

**Business and Finance**

- Develops and monitors department budget
- Administers the District Consolidated Application budgets
- Allocates textbook and special project funds to schools
- Develops alternative funding resources through school/business partnerships and successful grant writing

**Partnerships**

- District Liaison, Cotati-Rohnert Park Education Foundation
- Coordinates district Business Education Round Table
- District Liaison, Rohnert Park Sister Cities Commission
- District Liaison, Hewlett-Packard Partnership
- District Liaison, Sonoma County Associates for Youth Development

**Coordination and Articulation with Local Colleges and Universities**

- Co-Chaired the Cotati-Rohnert Park and Sonoma State University joint committee to study the feasibility of building a technology high school on the Sonoma State University Campus
- Coordinated the placement of Sonoma State University and Dominican College student teachers into district schools
- District Liaison for Sonoma State University 3-1-3 program
- District Liaison for the Santa Rosa Junior College Tech Prep Grant
- Guest lecturer, Sonoma State University and San Francisco University

**Grant Writing**

- Hewlett-Packard 'Hands-On' Science grants, K-8
- Goals 2000 Grant, K-12
- Hewlett-Packard 'Access the Internet' Grant
- Tech Prep Grant, 9-12
- *Second to None* 100 Schools Network Grant, 9-12
- Specialized Secondary School Grant

**Professional Affiliations**

- ACSA/XEROX Alliance Council
- Superintendents Academy, Association of California School Administrators (ACSA)
- Academy of Personnel Administrators, Association of California School Administrators (ACSA)
- Curriculum Auditor, American Association of School Administrators (AASA)
- Association for Supervision and Curriculum Development (ASCD)
- Administrator of the Year 1997, Sonoma County Association for Schools of Administrators

***APPENDIX F - STATEMENT OF DR. JANESE SWANSON, FOUNDER, GIRL TECH, SAN RAFAEL, CA***

*Technology in Schools - Preparing for the 21st Century*
Petaluma Community Center
Petaluma, California

**Janese Swanson, Ed.D.**
Written Statement

From my perspective as an educator, doctoral student, and business women in the technology industry, the three most important issues in education today are gender equity, a willingness to address gender issues, and communication.

**1. Equal opportunity through gender equity**
Both boys and girls perform better academically when they are expected to do well and are given opportunities to succeed. Research has shown that we as parents, educators, peers, media, and industry encourage children to follow specific gender roles. From clothing and toys to textbook content and images to parental and educator expectations, children are sent messages every day regarding what is appropriate to their gender. Girls, for example, are not expected to excel at math, science, or technology and few people are concerned when they shy away from these subjects; it is considered "normal". In a 1990 study, both boys and girls performed roughly equally in math but 22 percent of the boys and only 14 percent of the girls strongly agreed with the statement, "I am very good at mathematics".

Lack of experience does not equal lack of ability or interest; many girls who are encouraged to explore these traditionally "masculine" areas find them exciting, interesting, and easy to conquer. Research also shows that we buy computers and video games for our sons more often than our daughters; that girls' interest in technology tends to decline as they enter puberty and are more concerned with "fitting in"; that technology products are generally designed for and marketed specifically to boys; that in educational settings, boys are more involved in computer and technology classes and male role models for these areas are more prevalent.

As the world becomes increasingly technological, girls and boys who do not become comfortable with technology will be at a serious disadvantage when they enter the workforce as adults. Research has shown that girls lag far behind boys in technology use.

**2. Willingness to address gender issues**
Discrepancies between the genders exist and much of it can be attributed to what we teach our children, as opposed to their innate tendencies. The more we are willing to acknowledge and discuss the part each of us plays in the building of gender gaps, the more apt we are to change. Studies have shown that both boys and girls are aware that that boys are valued more highly in society, a factor that contributes to girls' beliefs, or lack thereof, in their abilities. Single sex educational settings can be useful to overcome gender-based inhibitions in both students and educators, especially in topic areas where

disparity between the genders already exists (math, science, technology). Additionally, bringing the technology to girls, rather than forcing them to enter a "male" arena can help: i.e., computers should be implemented in language, arts and humanities classrooms where teachers tend to be female and the population of girls is more dominant. Generally, we need to overcome the idea that girls won't enjoy or use technology. My company, Girl Tech, is proof that if technology is developed with girls' interests in mind, they will like it and play with it.

**3. Communication**

Integral to gender equity and a willingness to address issues is communication. Communication needs to be opened up between the genders to build understanding and acceptance, and to make certain that our children's specific needs are addressed. Educators also need to create lines of communication with parents and community so efforts in the classroom are enhanced in the home and community. If parents are aware of the problem, they can take action to involve their daughters in computer classes, and encourage them by exposing them to positive female role models.

**In summary**

Use of technology is already changing for young girls -- more and more are becoming technologically savvy -- especially those from families that can afford home computers, fax machines, etc. The computer has replaced the typewriter, and all students at some time or another need to type papers and are learning this technology. Personal computers are not a new concept -- they are becoming as commonplace as telephones and for that reason, girls aren't intimidated by them. However, to venture into male dominated areas such as computer programming, to profess an interest in HOW the computer works, is a leap into the masculine world for a young girl. She may not think to inquire because she has likely never been encouraged to explore the mechanical world. If she does think to, she may be afraid of the response -- how often are women and girls answered with "you wouldn't understand" or some other condescending remark that quells further investigation. Girls need to know that they don't have to become "tomboys" to excel at technology, and that their approach to and use of technology is valid and valuable to our society.

The research shows that children are strongly influenced by parents, teachers, peer group, media and the industry. Awareness of and willingness to address gender issues in all five areas is most likely to affect change for our children.

***APPENDIX G - STATEMENT OF MS. CINDANA CORNWELL, VICE PRESIDENT OF MARKETING, SPECTRASWITCH INCORPORATED, SANTA ROSA, CA***

*Technology in Schools - Preparing for the 21st Century*
Petaluma Community Center
Petaluma, California

**Cindana A. Cornwell**
Vice President for Marketing & Business Development
SpectraSwitch, Inc.

It is my personal and professional belief that all young people in the world today should have equal access to the Internet and technology that will help save lives and the build the economy of the future. The use and understanding of computers and the Internet is as important to young people today as the use of the car and calculator was to young people of my generation. It is the responsibility of state and a central government to make sure equal opportunity is available to all young people growing up today. The education systems need full access to the Internet via high-speed communications using the most up-to-date computers and digital televisions. The education will be richer and the learning experience more meaningful if the technology available from digital media is used effectively in the education system. So, not only do the tools: Internet access, high speed data links and computers/TV's need to be available, but the teachers need to be educated on how to use both the Internet and next generation digital TV to increase the learning and knowledge development for the variety of students they are educating. Unfortunately the education cannot stop in the school, so some responsibility exists to help educate the parents on the benefits of the new tools and increase their awareness of good practices in the home as Digital TV becomes more readily available.

**Biography**

Ms. Cindana Cornwell has recently been appointed vice president of marketing and business development for SpectraSwitch, Inc. of Santa Rosa, California. SpectraSwitch specializes in solid-state, all-optical, photonic/fiberoptic components used in telecommunications, data networks and specialty test equipment. Prior to joining SpectraSwitch, Cindana was the Senior Marketing Manager at Nortel Networks, Optoelectronics Division in Devon, England. Cindana holds a Bachelor's Degree in Chemical Engineering from Stanford University; Cindana first joined Nortel in 1995. During that time she held several senior positions including Product Line Manager for Erbium Doped Fiber Amplifiers and most recently Strategic Marketing Manager for Nortel's focus on the Optical Network Evolution. Cindana joined Nortel from Sun Microsystems were she worked with Sun's Corporate R&D teams on software and network applications for telecommunications systems. Cindana has become a well-known speaker and consultant in the Optical Components Industry. Cindana was born and raised in Stockton, California and attended Linden High School where she graduated as Salutatorian in 1976.

**Personal Note**

I have developed significant success and experience in both the Telecommunications and Computer Industries in setting up new businesses. My skills include global business management, strategic planning, public speaking, product line management, cross functional matrix management, marketing programs management and partnership development which have allowed me to both enjoy my job while making major contributions to international corporations. I attribute my commitment to business ethics and integrity to my family and the education and mentors I had while growing up in California. I was an active member of the 4H Club while growing up on a farm with my own field crops and many sewing projects. I was also encouraged by my principal and math teacher at Linden High School to pursue a University education in the field of engineering. This was made possible by participation in California State events such the State Fair, Bank American Awards Program, Wool Sewing Contests and the Science and Math Fairs, which I actively participated in for many years. I was very fortunate to attend Delta College in Stockton to take Calculus Math courses while still at High School prior to attending Stanford University. My first exposure to computing was at Stanford through a formal course on computing and using computers to complete my degree work in Chemical Engineering. At my very first job in Chicago, Illinois for the Westinghouse Corporation I had the opportunity to use computers to quote and close new business contracts. Without the experience and confidence I gained in California I would have never been so successful in that first job which depended on my using the computer as a tool to do the job more effectively than the people who had been using paper methods for more than 20 years.

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